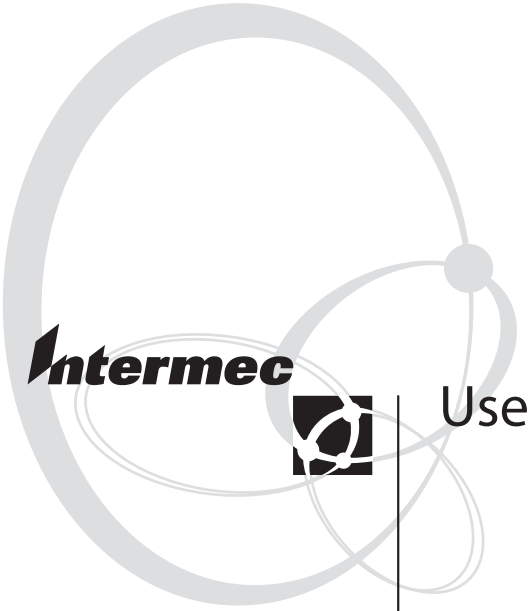
Intermec

User's Guide

EasyCoder PX4i Bar Code Label Printer

(Fingerprint Version)



User's Guide

EasyCoder PX4i Bar Code Label Printer

(Fingerprint Version)

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-00	05/2004	For preproduction DAT printers.
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Before You Begin

This section provides you with safety information, technical support information, and sources for additional product information.

Safety Summary

Your safety is extremely important. Read and follow all warnings and cautions in this document before handling and operating Intermec equipment. You can be seriously injured, and equipment and data can be damaged if you do not follow the safety warnings and cautions.

Do not repair or adjust alone

Do not repair or adjust energized equipment alone under any circumstances. Someone capable of providing first aid must always be present for your safety.

First aid

Always obtain first aid or medical attention immediately after an injury. Never neglect an injury, no matter how slight it seems.

Resuscitation

Begin resuscitation immediately if someone is injured and stops breathing. Any delay could result in death. To work on or near high voltage, you should be familiar with approved industrial first aid methods.

Energized equipment

Never work on energized equipment unless authorized by a responsible authority. Energized electrical equipment is dangerous. Electrical shock from energized equipment can cause death. If you must perform authorized emergency work on energized equipment, be sure that you comply strictly with approved safety regulations.

Safety Icons

This section explains how to identify and understand the warnings, cautions, and notes that are in this document. You may also see icons that tell you when to follow ESD procedures.

A warning alerts you of an operating procedure, practice, condition, or statement that must be strictly observed to avoid death or serious injury to the persons working on the equipment.

A caution alerts you to an operating procedure, practice, condition, or statement that must be strictly observed to prevent equipment damage or destruction, or corruption or loss of data.

This icon appears at the beginning of any procedure in this manual that could cause you to touch components (such as printed circuit boards) that are susceptible to damage from electrostatic discharge (ESD). When you see this icon, you must follow standard ESD guidelines to avoid damaging the equipment you are servicing.

Note: Notes either provide extra information about a topic or contain special instructions for handling a particular condition or set of circumstances.

Global Services and Support

Warranty Information

To understand the warranty for your Intermec product, visit the Intermec web site at www.intermec.com and click **Support** > **Returns and Repairs** > **Warranty**.

Disclaimer of warranties: The sample code included in this document is presented for reference only. The code does not necessarily represent complete, tested programs. The code is provided "as is with all faults." All warranties are expressly disclaimed, including the implied warranties of merchantability and fitness for a particular purpose.

Web Support

Visit the Intermec web site at www.intermec.com to download our current manuals (in PDF). To order printed versions of the Intermec manuals, contact your local Intermec representative or distributor.

Visit the Intermec technical knowledge base (Knowledge Central) at www.intermec.com and click **Support** > **Knowledge Central** to review technical information or to request technical support for your Intermec product.

Telephone Support

These services are available from Intermec.

Services	Description	In the USA and Canada call 1-800-755-5505 and choose this option
Order Intermec products	• Place an order. • Ask about an existing order.	1 and then choose 2
Order Intermec media	Order printer labels and ribbons.	1 and then choose 1
Order spare parts	Order spare parts.	1 or 2 and then choose 4
Technical Support	Talk to technical support about your Intermec product.	2 and then choose 2
Service	• Get a return authorization number for authorized service center repair. • Request an on-site repair technician.	2 and then choose 1
Service contracts	• Ask about an existing contract. • Renew a contract. • Inquire about repair billing or other service invoicing questions.	1 or 2 and then choose 3

Outside the U.S.A. and Canada, contact your local Intermec representative. To search for your local representative, from the Intermec web site, click **About Us** > **Contact Us**.

Service Location Support

For the most current listing of service locations, click **Support** > **Returns and Repairs** > **Repair Locations**.

For technical support in South Korea, use the after service locations listed below:

AWOO Systems
102-1304 SK Ventium
522 Dangjung-dong
Gunpo-si, Gyeonggi-do Korea, South 435-776
Contact: Mr. Sinbum Kang
Telephone: +82-31-436-1191
E-mail: **mjyun@awoo.co.kr**

IN Information System PTD LTD
6th Floor
Daegu Venture Center Bldg 95
Shinchun 3 Dong
Donggu, Daegu City, Korea
E-mail: **jmyou@idif.co.kr** or **korlim@gw.idif.co.kr**

Who Should Read This Manual

This User's Guide provides you with information about the features of the EasyCoder PX4i printer and how to install, configure, operate, maintain, and troubleshoot it.

Related Documents

The Intermec web site at **www.intermec.com** contains our documents (as PDF files) that you can download for free.

To download documents

1. Visit the Intermec web site at **www.intermec.com**.
2. Click **Support** > **Manuals**.
3. In the **Select a Product** field, choose the product that you want to download documentation for.

To order printed versions of the Intermec manuals, contact your local Intermec representative or distributor.

1 Introduction

This chapter introduces the EasyCoder PX4i printer and covers the following topics:

- Description of EasyCoder PX4i Printer
- Safety Summary
- Product Identification

Description of EasyCoder PX4i Printer

The EasyCoder PX4i printer is an industrial, rugged, and high-volume thermal transfer printer with a printhead resolution of 8 dots/mm (203.2 dots/inch) or 11.81 dots/mm (300 dots/inch). The maximum print width is 112 mm (4.5 in).

The EasyCoder PX4i printer offers a large number of useful features:

- High speed printing up to 300 mm/sec (12 in/sec)
- Flash memory SIMMs for firmware, fonts, bar codes, and application programs
- Built-in CompactFlash memory card adapter
- Built-in RS-232 and USB interfaces
- Provision for one or two extra interface boards including wired or wireless EasyLAN connections, parallel interface, double serial interfaces, and serial/industrial interfaces
- Keyboard and display with backlight
- Support for network monitoring through optional software tools

A large number of factory-installed or field-installable options are available, so the printer can be configured for a wide range of applications. See **"Options" on page 101**, for more information.

The EasyCoder PX4i supports the unique and flexible Intermec Fingerprint v8.30 programming language, which allows the user or third-party developer to create custom-made application programs and label formats in a BASIC-like environment.

The printer is also designed to work with the Intermec Direct Protocol programming language, Intermec InterDriver, and Intermec LabelShop. The InterDriver allows you to print labels from standard MS Windows applications, for example Microsoft Office. Intermec LabelShop is a series of label design programs that work under various versions of MS Windows.

The EasyCoder PX4i supports 15 scalable Unicode TrueType and TrueDoc fonts as standard. Additional fonts can be downloaded into the printer's Flash memory, or be plugged in using a CompactFlash card. The Unicode standard allows the use of special characters for various languages including non-Latin fonts, such as Arabic, Cyrillic, Chinese, Japanese, Korean, Hebrew, and similar.

A version of EasyCoder PX4i, that supports the Intermec Programming Language (IPL) v2.30, is described in a special User's Guide.

Safety Summary

Intermec assumes no responsibility regarding the CE Directive if the printer is handled, modified, or installed in any way other than that described in Intermec's manuals.

- Read this manual carefully before connecting the printer.
- Moving parts are exposed when the side doors are open, so ensure that the doors are closed before you operate the printer.
- Do not remove the left-hand cover. Dangerous voltage!
- Do not remove the bottom plate. Dangerous voltage!
- Do not put your fingers inside the print mechanism when the power is on.
- Place the printer on an even surface which can support its weight of approximately 13 kg (28.5 lb) plus supplies.
- Do not spray the printer with water. If you are using a hose to clean the premises in an industrial environment, remove the printer or protect it carefully from spray and moisture.
- Carefully read the warning text on the envelope before using a cleaning card.

Product Identification

The machine label is attached to the printer's rear plate and contains information on type, model, and serial number as well as AC voltage. It also contains regulatory agency markings indicating compliance with specific agency regulations, if any.

2 Installation

This chapter explains how to unpack and install the EasyCoder PX4i printer and also describes the printer's various parts in detail. It covers the following topics:

- Unpacking the Printer
- Connecting the Printer
- Controls and Indicators

Unpacking the Printer

Before you install the printer, unpack and examine it for possible damage or missing parts.

To unpack the printer

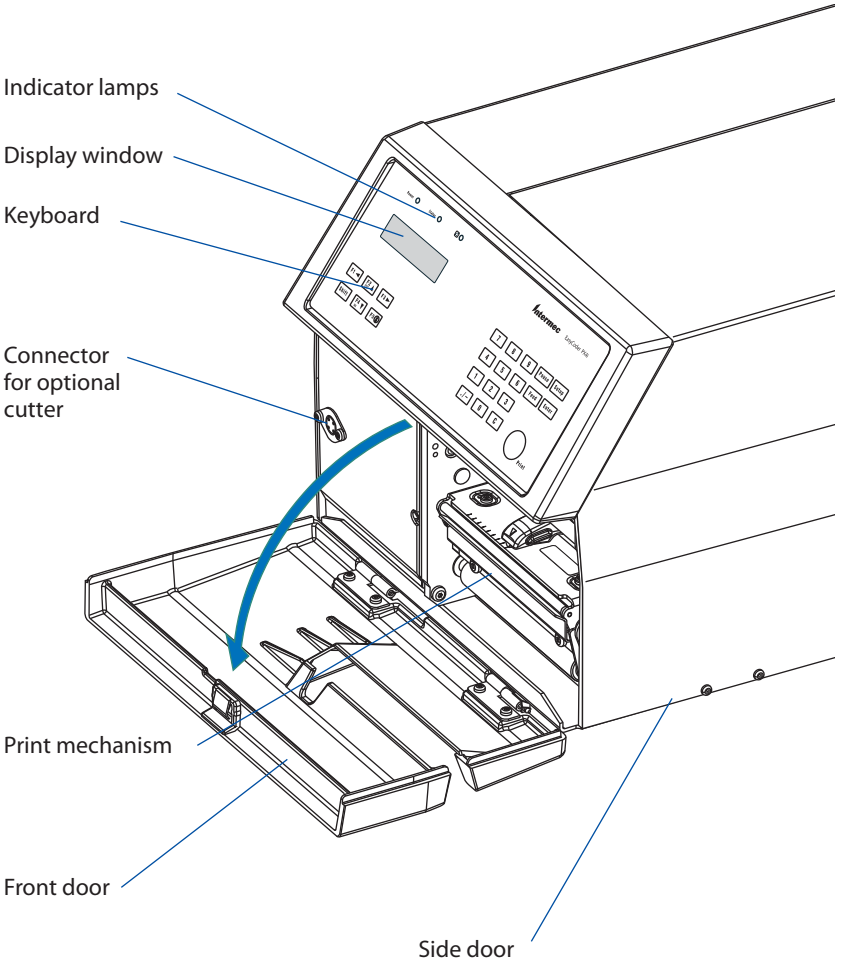
1. Open the box and lift the printer out.
2. Check that the printer has not been visibly damaged during transportation. Keep the packing materials in case you need to move or reship the printer.
3. Check the label on the printer's rear plate, which gives the voltage, the part number, and the serial number.
4. Check that any options you ordered are included.
5. Check that all the accessories are included:
   - Intermec EasyCoder PX4i printer
   - Adapter for 3 in media roll core
   - Power cord
   - Quality check card
   - Cleaning card
   - Compact disk (CD) with supporting software, additional manuals, and product information.
6. Check that the type of power cord is appropriate for the local standard. The printer works within 90 to 265 VAC, 50 to 60 Hz.
7. If the printer has been damaged in any way during transportation, report the damage to the carrier immediately.
8. If the delivery is incorrect or any parts are missing, report it immediately to the distributor.

Front View

At the front of the printer are the display window, the indicator lamps, and the keyboard. These features allow the operator to control and set up the printer manually.

The front door is held by a snap-lock. Open the front door to view the various parts on the printer's front.

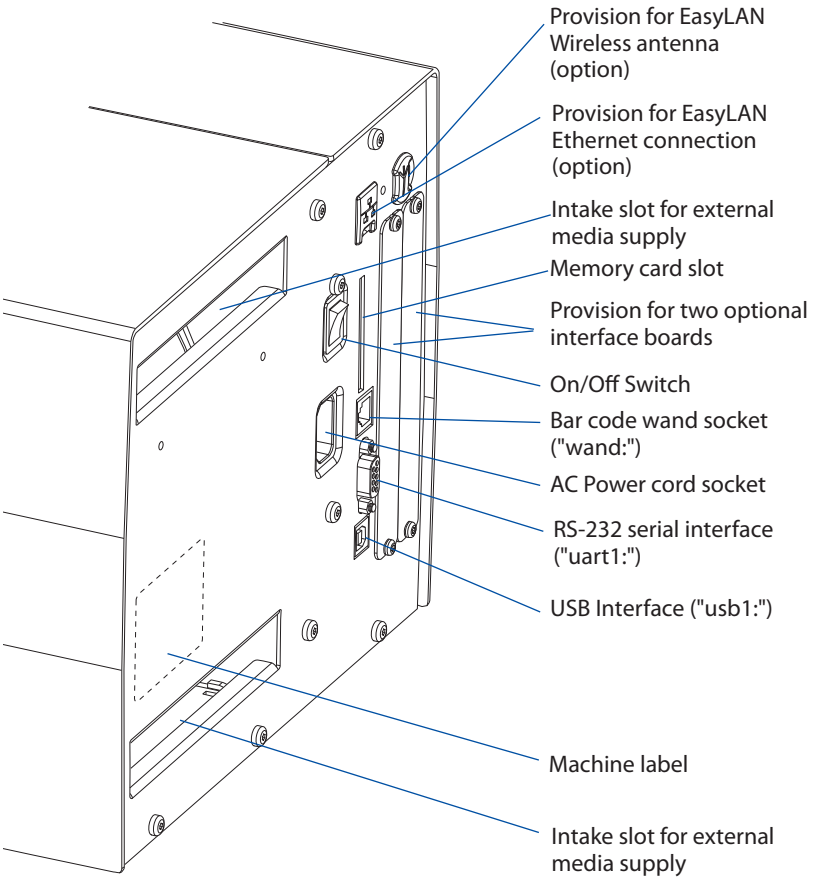
Refer to **"Options" on page 101**, for information on possible optional devices fitted on the printer's front.



Front View

Rear View

The rear plate contains the On/Off switch, the AC power cord socket, and various interface connectors and slots.

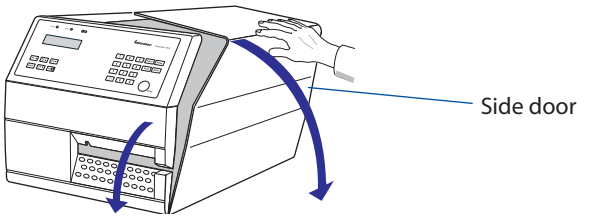

Provision for EasyLAN Wireless antenna (option)
Provision for EasyLAN Ethernet connection (option)
Intake slot for external media supply
Memory card slot
Provision for two optional interface boards
On/Off Switch
Bar code wand socket ("wand:")
AC Power cord socket
RS-232 serial interface ("uart1:")
USB Interface ("usb1:")
Machine label
Intake slot for external media supply

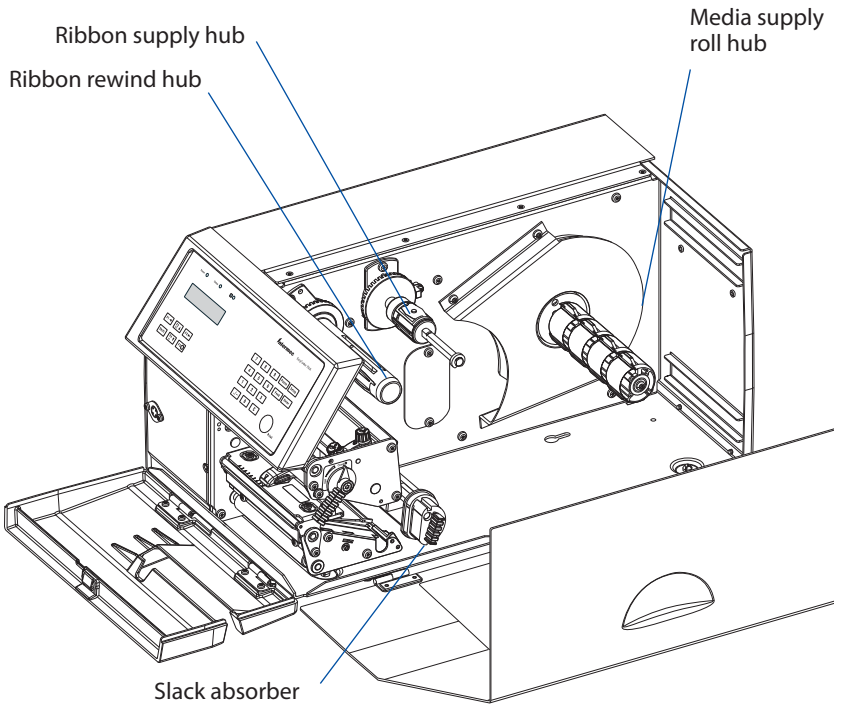
Rear View

Media Compartment

The media compartment is covered by the side door which can be opened 180° downwards to provide complete access to the media and ribbon loading area. The door is held closed by a magnetic lock. It can be completely removed by opening it and then pulling it forward.

The media can be supplied from a rotating hub or from an external supply of fanfolded media behind the printer. For more information, see **"Options" on page 101**.

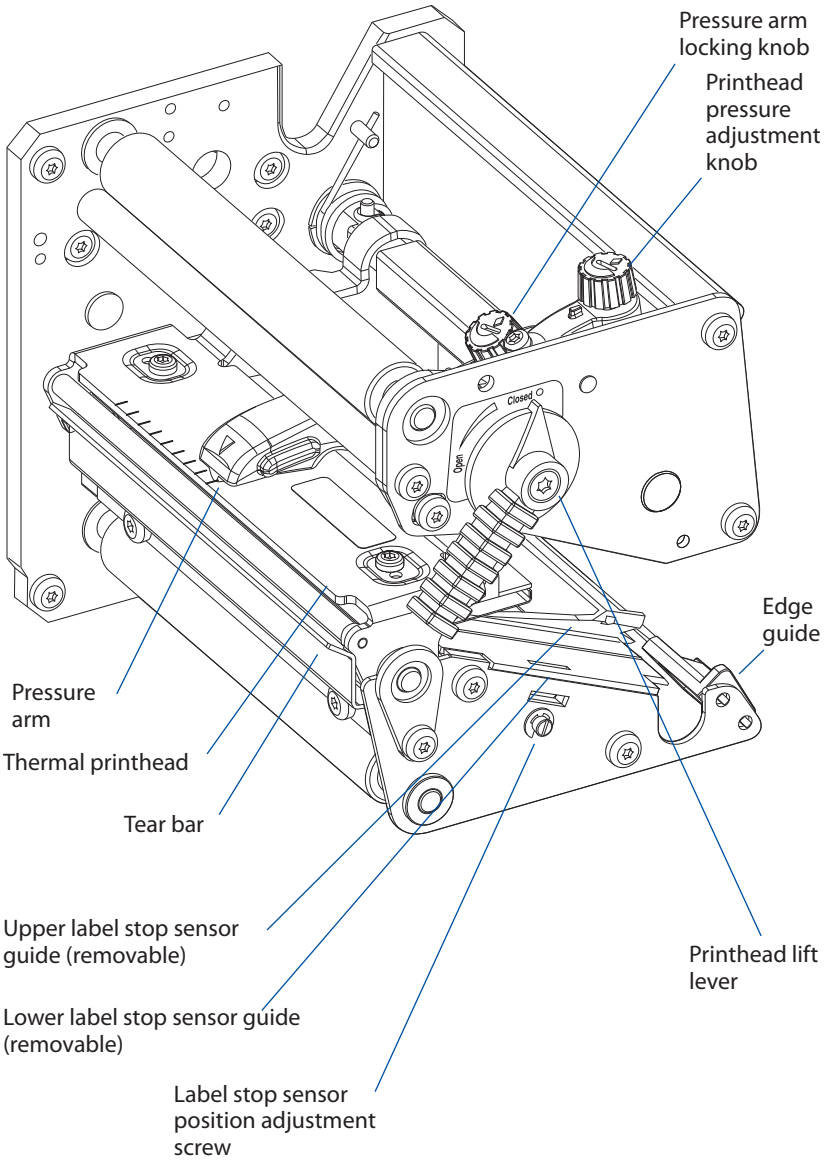




Media Compartment

Print Mechanism

The print mechanism features a high-performance thermal printhead with quick-mount fittings to facilitate replacement.



Print Mechanism

Connecting the Printer

To connect the printer to power

1. Place the printer on a level surface near an AC outlet. You should be able to access the back, front, and sides of the printer as necessary to load supplies and remove the printout.
2. Check that the printer is switched off.
3. Connect the power cord from the socket on the rear plate to an electrical outlet (90 to 265 VAC).

Computer

The EasyCoder PX4i printer is fitted with one 9-pin D-style subminiature (DB9) socket for the RS-232 serial interface port and one class B connector for the USB interface port. For more information about ports, see "Interfaces" on page 153.

RS-232 Serial Interface ("uart1:")

Use the serial interface with Intermec LabelShop or the Intermec Inter-Driver. Also use it with the Intermec Direct Protocol or the Intermec Fingerprint programming language because you can receive error messages from your printer. Before you can use the serial interface, you may need to set up the communication parameters, such as baud rate, parity, etc. as described in "Setting Up the Printer" on page 59.

USB Interface ("usb1:")

Use the USB interface with an USB-compatible version of the Intermec InterDriver for printing. The USB interface is not suitable for programming because the host cannot receive error messages from your printer.

Optional Interface and Network Boards ("uart2:", "uart3:", "uart4:", "uart5:", "centronics:", and "net1:")

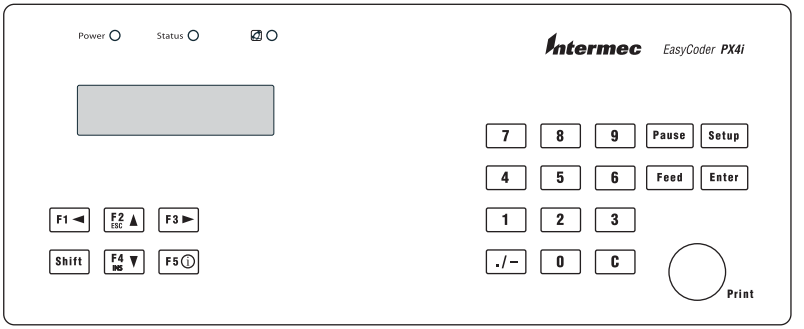
For details, see "Interface Boards" on page 106. Refer to "Setting Up the Printer" on page 59, "Navigating in Setup Mode" on page 79, and "Optional Interfaces" on page 157 for connection and setup instructions.

The printer can be set to scan all communication ports. When it detects incoming data on a port, the printer automatically switches to use that port for both input and output. This facility ("auto") can be selected in Intermec Shell (see "Intermec Shell Startup Program" on page 91) or using the Intermec Fingerprint instruction SETSTDIO, see *Intermec Fingerprint v8.3x, Programmer's Reference Manual*. Press **F5/i** to get information on the active communication channels.

Switch off both PC and printer before connecting them together.

Controls and Indicators

The EasyCoder PX4i printer has several ways of communicating directly with its operator: three colored LEDs, a display window, a membrane-switch keyboard with 23 programmable keys and buttons on the front, and a beeper.



Display and controls

Indicator Lamps

The indicators are colored LEDs (Light Emitting Diodes) and are used for the following purposes:

Power

Power (solid green) indicates that the power is on.

Status

Status (solid green) indicates that the printer is ready for use.

Status (flashing green) indicates that the printer is communicating.

Status (solid red) indicates an error condition (see "Troubleshooting" on page 107).

Intermec Ready-to-Work indicator (blue; on, blink, or off). The indicator has three different states: On, Blinking, and Off. When the indicator is On, the printer is ready for use. When the indicator is blinking, the printer may be initializing, waiting for external resources, or in need of user attention. When the indicator is off, the printer is not ready to operate.

Display

The display window contains an LCD (Liquid Crystal Display) with background illumination and two lines of text, each with 16 characters. It provides information on installed firmware or running application, prompts the operator in Intermec Shell and in the Setup Mode, and can show information on possible errors and active communication channels. The Intermec Fingerprint programming language and the Intermec Direct Protocol allow custom-made messages to be composed and displayed according to the requirements of the application.

Keyboard

The keyboard is of the membrane-switch type and has 22 keys. The keyboard is supplemented by a large **Print** button. Some keys have hard-coded functions in the startup and setup modes.

Keyboard Buttons

Button	Function
Print button	Feeds a page or pauses a print job. Repeats last printed label.
Pause	Toggle between pause and printing when executing a print job.

Keyboard Buttons (continued)

Button	Function
Pause + Shift	Interrupt a running Fingerprint program.
Setup	Enter Setup Mode. For more information, see "Setup Mode" on page 77.
Feed	Feed out a blank label or the equivalent.
Feed + Shift	Perform a Testfeed (feed a blank label and adjust the media feed).
F5 ⓘ	Display error messages, Intermec Ready-To-Work status, and communication channel information.
F1 ◄ F3 ►	Scroll between types of information after pressing **F5/i**. Possible error messages and information on active communications channels are shown in a loop.

In application programs created using the Intermec Fingerprint programming language, the keys can be assigned to various functions or be disabled individually. Since one key is assigned as shift key, up to 44 different key combinations are possible. An audible signal, which can be turned off if so desired, acknowledges that a key has been pressed.

Keyboard Color	Code
Yellow	Operation of the printer (operator level)
Green	Setup or service (site or service technician level)
White	Data input to printer (operator or technician level)

Beeper

The beeper acknowledges that an error has occurred or a key has been pressed. The Intermec Fingerprint programming language allows the key acknowledge signal to be turned off. The frequency and duration of signals can be specified. Thus, it is possible to create different signals for different conditions or even to make the printer play simple melodies!

3 Starting Up

This chapter explains how to start up the printer after installation or after having been switched off. It covers the following topics:

- Startup Files
- Memory Cards
- Switching on the Printer

Startup Files

When the printer is switched on, its behavior depends on the existence of a startup file (autoexec.bat) in its memory. There are two cases:

- The printer is only fitted with the Intermec Shell file-managing program, which allows the operator to choose between a variety of applications and functions.
- In addition to Intermec Shell, the printer is also fitted with a custom made application program that is design to perform a specific task, for example to print tickets, baggage tags, or product labels for a certain company. Such a program may be initiated by a startup file (autoexec.bat) stored in the printer's permanent memory or in a memory card.

There can be one startup file stored in each of three different parts of the printer's memory. If there are startup files stored in more than one part, only one will be used with the following priority:

1. An autoexec.bat file stored in a memory card, provided the card was inserted in the printer before the power was switched on.
2. An autoexec.bat file stored in the read/write part of the printer's permanent memory (device "/c").
3. The pup.bat file (Intermec Shell) in the read-only part of the printer's permanent memory (device "/rom").

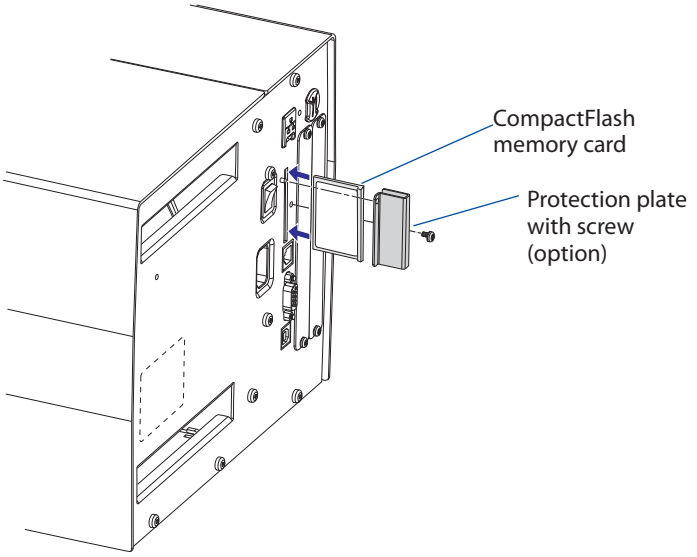
Note: If you insert a CompactFlash memory card that contains a startup file before you switch on the printer, this startup file will be used instead of Intermec Shell.

Memory Card

If you want to use a memory card, you must insert it into the slot in the printer's rear plate before you switch on the power. The memory card must be a CompactFlash card (8MB-1GB). CompactFlash cards marked "CF+" will not work. You can use the CompactFlash card to expand the printer's storage memory ("card1:"). There are also three types of pre-programmed CompactFlash cards:

- Font Cards provide additional fonts that can be used as long as the card remains inserted in the printer.
- Font Install Cards permanently install additional fonts in the printer, which can be used even after the card has been removed.
- Firmware Cards automatically replace the printer's firmware, usually with an updated version.

CompactFlash cards are widely used for consumer's computer products like digital cameras. You can get a certain protection from theft by installing an optional plate that covers an inserted CompactFlash card.



CompactFlash memory card

Note: Always switch off the power before inserting or removing a memory card! The card will only fit in one way. A memory card is only detected if it is inserted before the printer is started.

Switching On the Printer

Before switching on the printer, make the necessary connections, and check that the printhead is engaged.

Switch on the power using the On/Off switch on the rear plate. The "Power" LED on the front panel lights up when the power is on. Wait for a few moments while the printer loads the program and runs some self-diagnostic tests. The Display Window will show the following progress indicator.

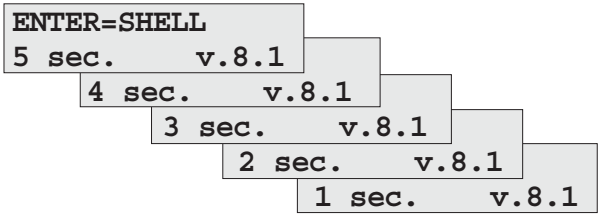
```
      Starting
■■■■■■
```

After a short time, the printer is initialized. The progress of the initialization is indicated by an increasing number of colons on the lower line in the display.

```
Initializing
:::
```

The type of startup file running in the printer is indicated by the message shown in the display window immediately after initialization.

A. Intermec Shell Startup Program



Refer to "Intermec Shell Startup Program" on page 91 for more information on Intermec Shell. The digits in the lower right corner of the display indicate the version of Intermec Shell.

B. Custom-Made Application Program

Any other display messages than those illustrated above indicates that the printer is running some custom-made, non-standard application program, or that some error has occurred.

4 Loading Media

This chapter explains how to load the printer with various kinds of continuous, gap, or mark media for the following modes of operation:

- Tear-Off (Straight-Through)
- Cut-Off (Cutter)
- Peel-Off (Self-adhesive Strip)
- Internal Batch Takeup (Roll-to-Roll)
- External Supply (Fanfold or Continuous Stock)

Tear-Off (Straight-Through)

The EasyCoder PX4i printer can print on labels, tickets, tags, and continuous stock in various forms. This section describes the case when the media is torn off manually against the printer's tear bar. This method is also known as "straight-through printing."

Press **Feed** when loading the same type of media as before. When switching to a new type of media, or if the printer does not feed out the media properly, simultaneously press **Shift** and **Feed** to perform a "testfeed."

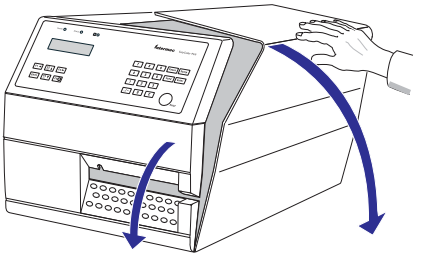
Tear-off can be used for:

- Non-adhesive continuous stock
- Self-adhesive continuous stock with liner
- Self-adhesive labels with liner (gap or continuous stock)
- Tickets with gaps (gap stock), with or without perforations
- Tickets with black marks (mark stock), with or without perforations

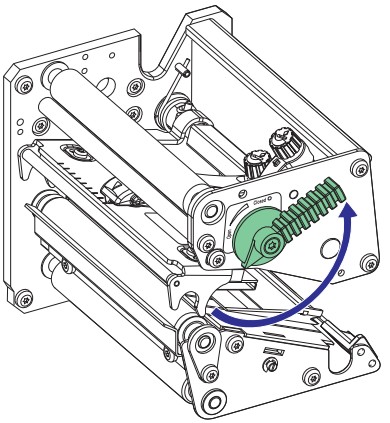
An optional label taken sensor can hold the printing of the next copy in the batch until the present copy has been removed. For more information, see **"Label Taken Sensor" on page 105**.

To load media for tear-off operation

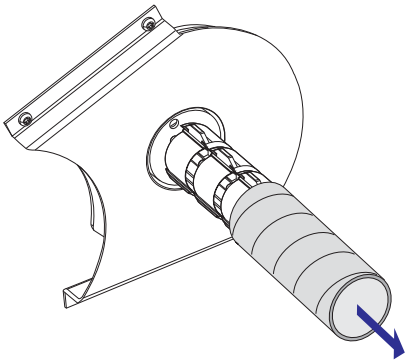
1 Open the front and side doors.



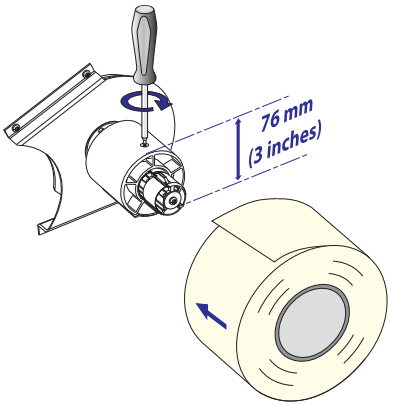
2 Turn the printhead lift lever counter-clockwise to raise the printhead.



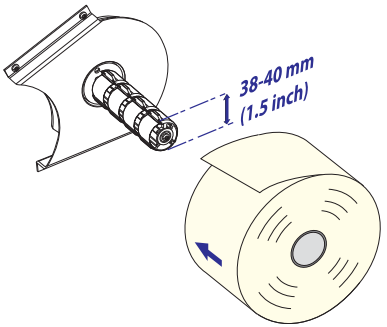
3 Remove any empty core from the media supply hub.



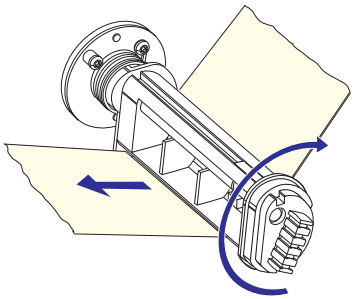
4 In the case of a media roll with a 76 mm (3 in) core, fit an adapter on the media supply hub.



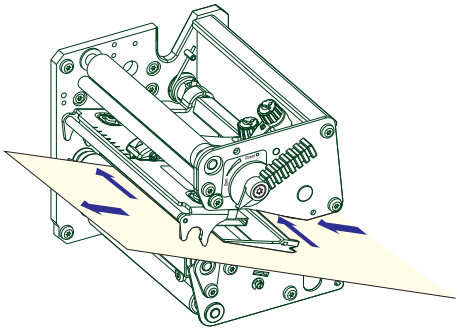
5 Fit a new roll of media onto the media supply hub and push the roll inwards as far as it will go.



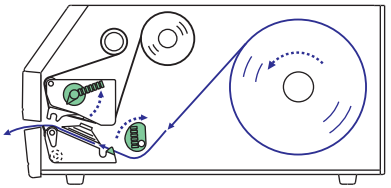
6 Route the media underneath the slack absorber and forward towards the print mechanism. The slack absorber can be rotated for better access and then snap-locked in open position.



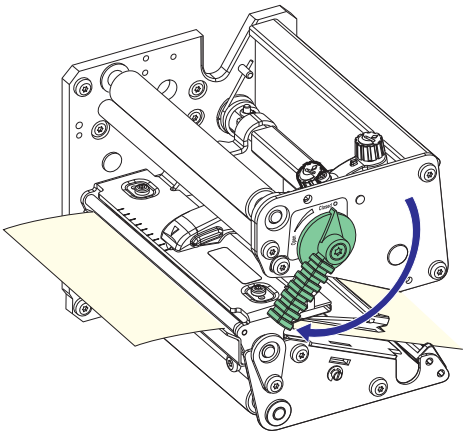
7 Route the media through the print unit and push it inwards as far as it will go.



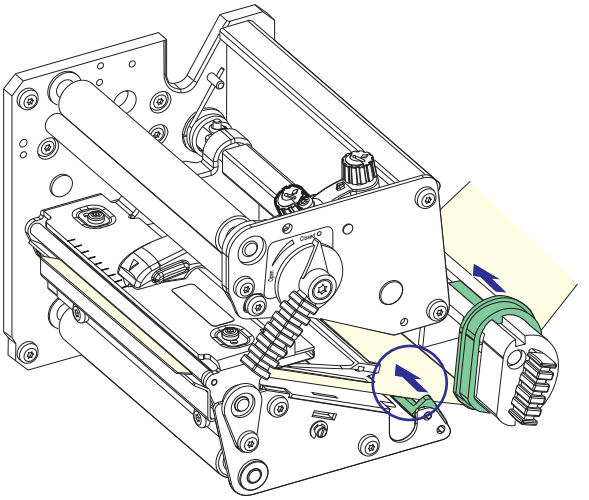
8 This diagram shows the path the media will take through the printer.



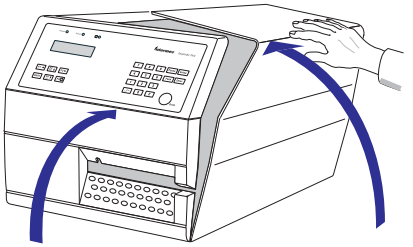
9 Turn the printhead lift lever to the “closed” position.



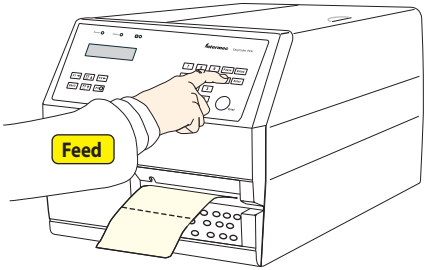
10 Adjust the position of the green edge guides so that the media is guided with a minimum of play.



11 Close the front and side doors.



12 Press **Feed** to advance the media and adjust the media feed. Tear off the media by grabbing the outer edge and pulling downwards.



Cut-Off

The EasyCoder PX4i printer can print on labels, tickets, tags, and continuous stock in various forms. This section describes the case when the media is to be cut off by an automatic paper cutter (option).

Press **Feed** when loading the same type of media as before. When switching to a new type of media, or if the printer does not feed out the media properly, simultaneously press **Shift** and **Feed** to perform a "testfeed."

Cut-off can be used for:

- Non-adhesive continuous stock
- Self-adhesive labels with liner (cut only liner between labels)

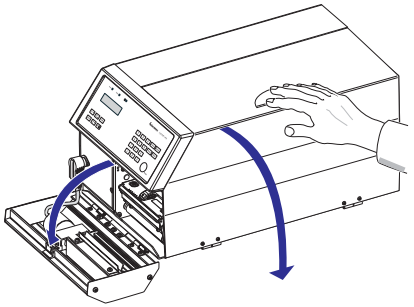
The cutter is designed to cut through paper-based media with a thickness between 60 and 175 µm, which roughly corresponds to a paper weight of 60 to 175 grams/m^2 (basis weight 40 to 120 lb.). The cutter should not be used to cut through labels because the adhesive will stick to the shears, which can damage the cutter.

The optional label taken sensor cannot be used with the cutter.

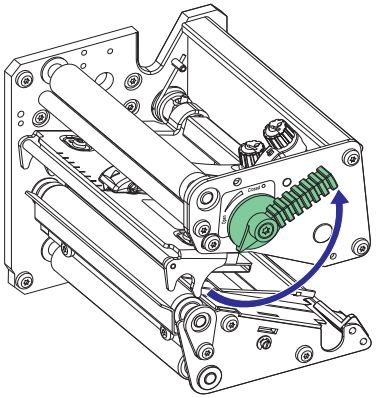
The rotating cutting blade can be accidently activated while the cutter is open. To avoid any risk of injury to fingers, always switch off the power before loading media and/or ribbon in a cutter-equipped printer.

To load media for cut-off operation

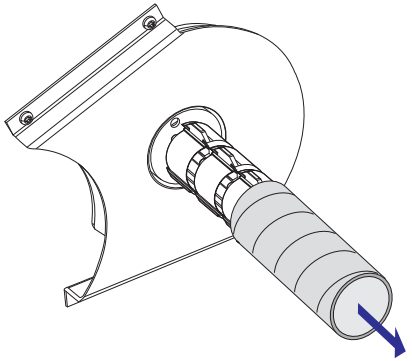
1 Switch off the power. Open the cutter and the side door.



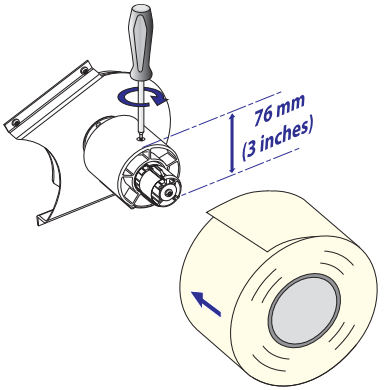
2 Turn the printhead lift lever counterclockwise to raise the printhead.



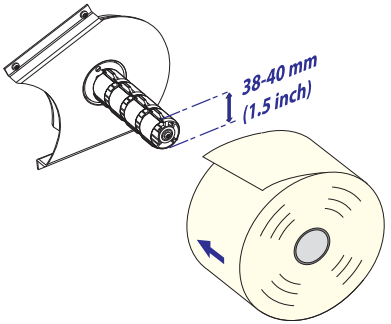
3 Remove any empty core from the media supply hub.



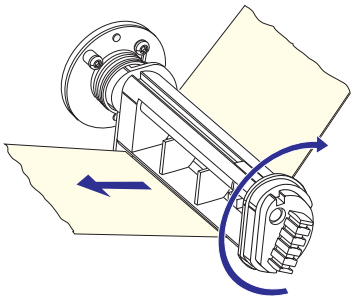
4 In the case of a media roll with a 76 mm (3 in) core, fit an adapter on the media supply hub.



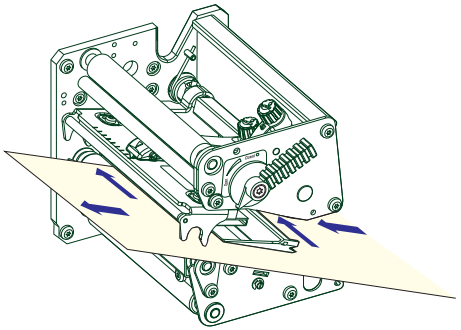
5 Fit a new roll of media onto the media supply hub and push the roll inwards as far as it will go.



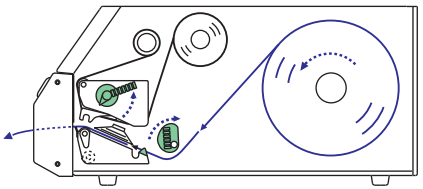
6 Route the media underneath the slack absorber and forward towards the print mechanism. The slack absorber can be rotated for better access and then snap-locked in open position.



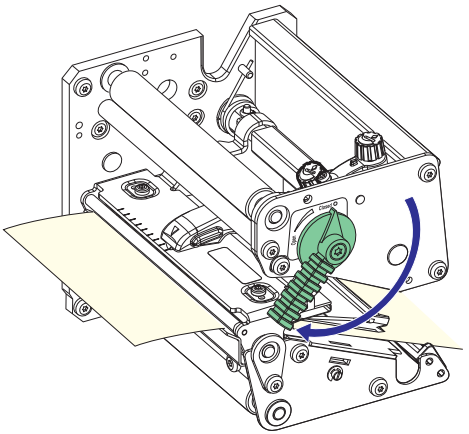
7 Route the media through the print unit and push it inwards as far as it will go.



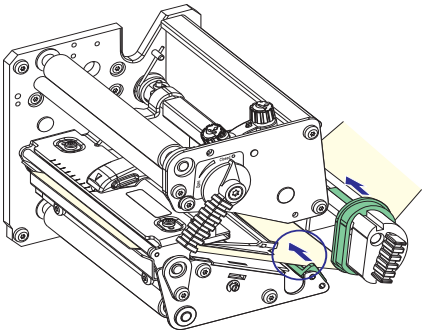
8 This diagram shows the path the media will take through the printer.



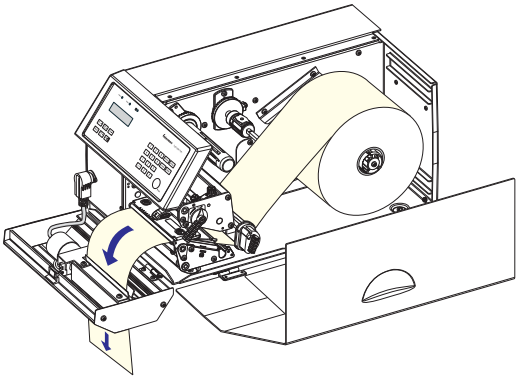
9 Turn the printhead lift lever to the “closed” position.



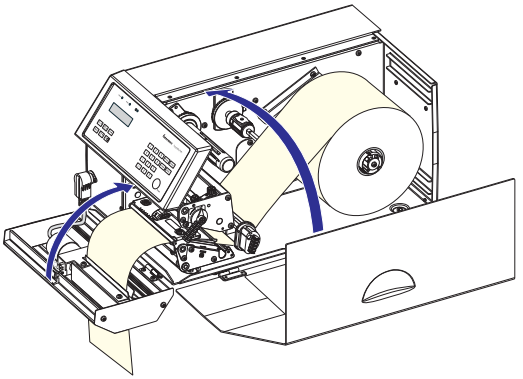
10 Adjust the position of the green edge guides so that the media is guided with a minimum of play.



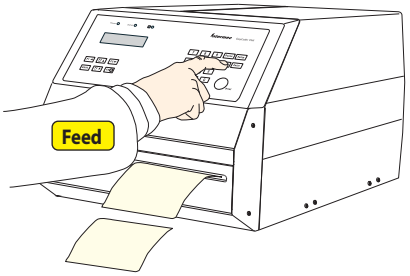
11 Route the media through the cutter between the two guide plates.



12 Close the cutter unit while pulling on the end of the media. Close the side door and then switch the power on.



13 Press **Feed** to advance the media and adjust the media feed.



Peel-Off (Self-Strip)

The EasyCoder PX4i printer can print on labels, tickets, tags, and continuous stock in various forms.

This section describes the case when self-adhesive labels are separated from the liner immediately after printing, which requires an optional internal liner/batch takeup unit. For more information, see **"Liner/Batch Takeup Kit" on page 103**. This is also known as "Self-strip" operation.

Press **Feed** when loading the same type of media as before. When switching to a new type of media, or if the printer does not feed out the media properly, simultaneously press **Shift** and **Feed** to perform a "testfeed."

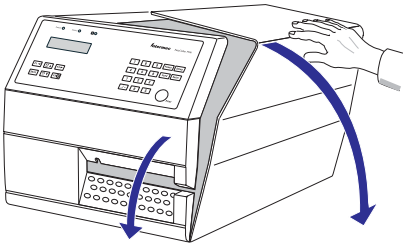
Peel-off can only be used for self-adhesive labels with liner.

An optional label-taken sensor can hold the printing of the next label in a batch until the present label has been removed. See **"Label Taken Sensor" on page 105**.

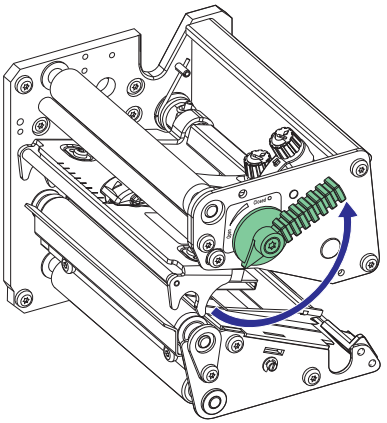
Note: Peel-off operation sets high demands on the media for proper label stiffness, release characteristics of the adhesive and liner, resistance against electrostatic charge, and so on. If these specific requirements are not met, the labels will not dispense properly. Consult your media supplier or test the media to make sure it is suitable for your application.

To load media for peel-off operation

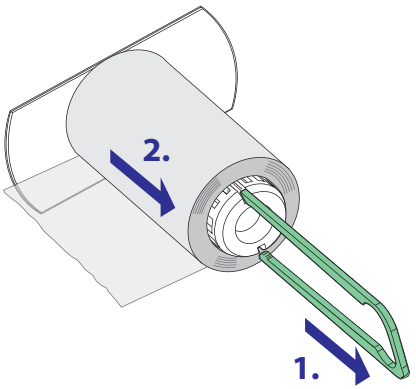
1 Open the front and side doors.



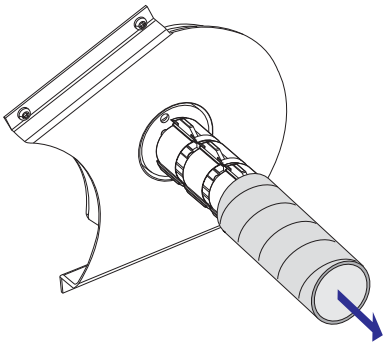
2 Turn the printhead lift lever counter-clockwise to raise the printhead.



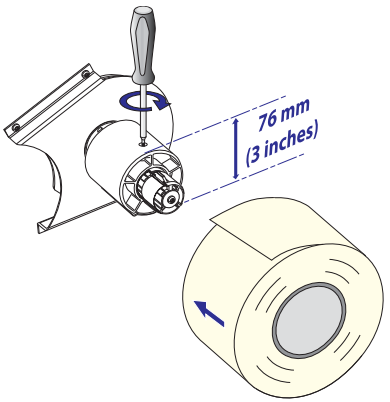
3 Pull out the green clip (1) on the liner takeup hub and dispose of any wound-up liner (2).



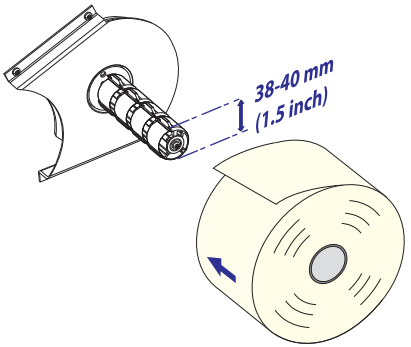
4 Remove any empty core from the media supply hub.



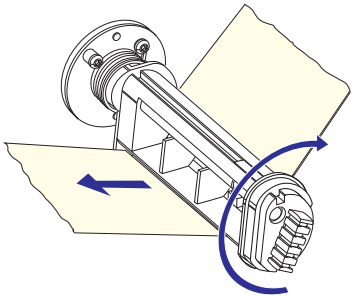
5 In the case of a media roll with a 76 mm (3 in) core, fit an adapter on the media supply hub.



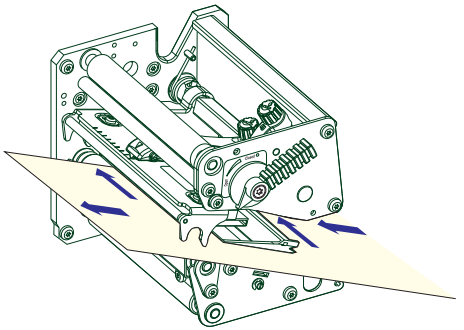
6 Fit a new roll of media onto the media supply hub and push the roll inwards as far as it will go.



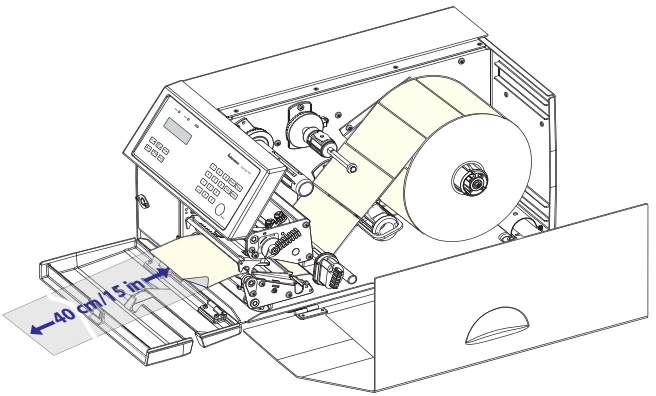
7 Route the media underneath the slack absorber and forward towards the print mechanism. The slack absorber can be rotated for better access and then snap-locked in open position.



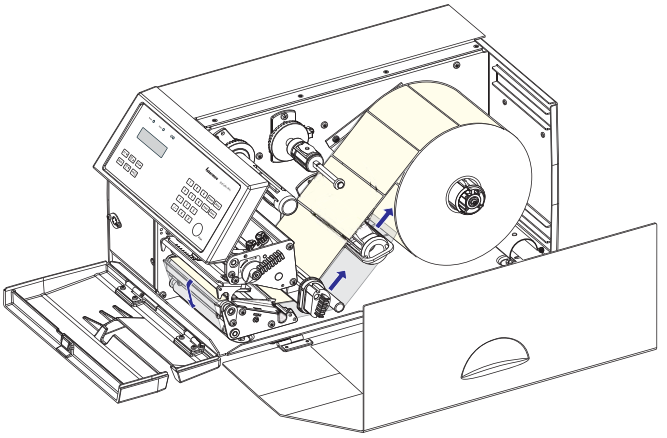
8 Route the media through the print unit and push it inwards as far as it will go.



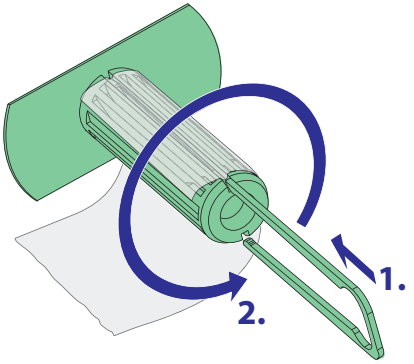
9 Pull out approximately 40 cm (15 in) of labels and remove the labels from the liner.



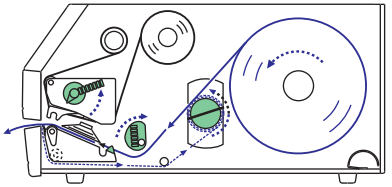
10 Route the liner around the tear bar and back under the print unit.



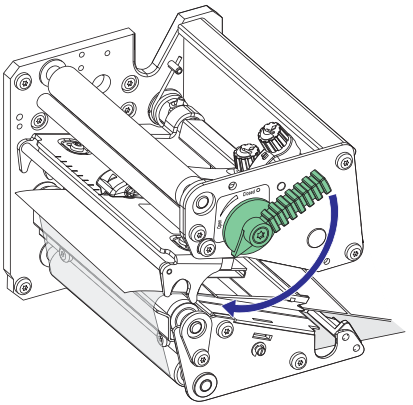
11 Secure the liner to the takeup hub with the green clip (1) and rotate the hub (2) until the media is pulled tight.



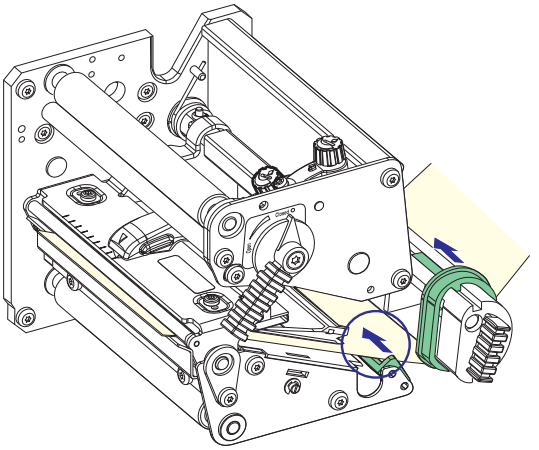
12 This diagram shows the path the media and liner will take through the printer.



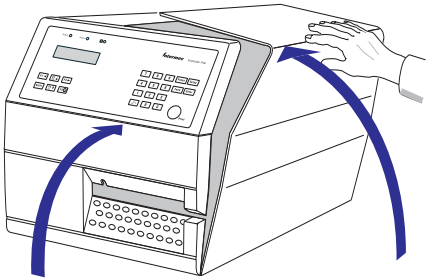
13 Turn the printhead lift lever to the “closed” position.



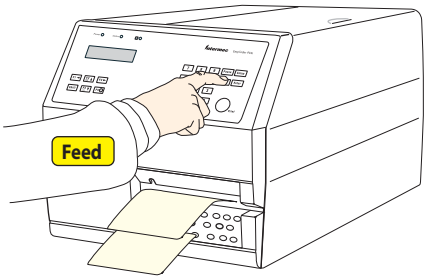
14 Adjust the position of the green edge guides so that the media is guided with a minimum of play.



15 Close the front and side doors.



16 Press **Feed** to advance the media and adjust the media feed.



Internal Batch Takeup (Roll-to-Roll)

The EasyCoder PX4i printer can print on labels, tickets, tags, and continuous stock in various forms. This section describes the case when printed labels fitted on liner (backing paper) or pre-perforated tickets and tags are wound up inside the printer. The roll of printed labels, tickets, or tags can then be removed and be handled manually. This requires an optional internal liner/batch takeup unit.

Press **Feed** when loading the same type of media as before. When switching to a new type of media, or if the printer does not feed out the media properly, simultaneously press **Shift** and **Feed** to perform a "testfeed."

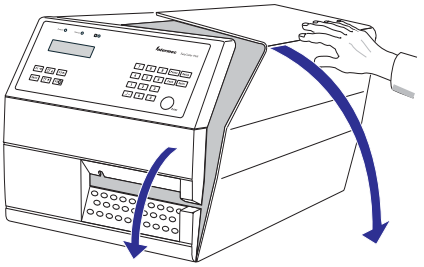
The takeup hub can accommodate 30 to 40% of a full-size media roll.

Internal batch takeup can be used for:

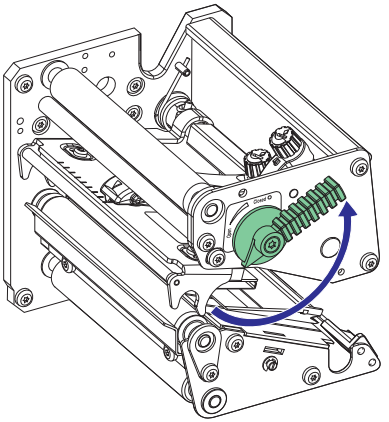
- Self-adhesive labels fitted on liner
- Pre-perforated tickets with gaps
- Pre-perforated tickets with marks

To load media for internal batch takeup operation

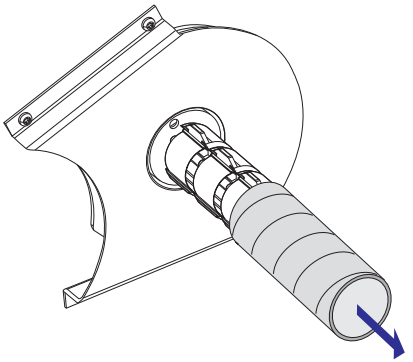
1 Open the front and side doors.



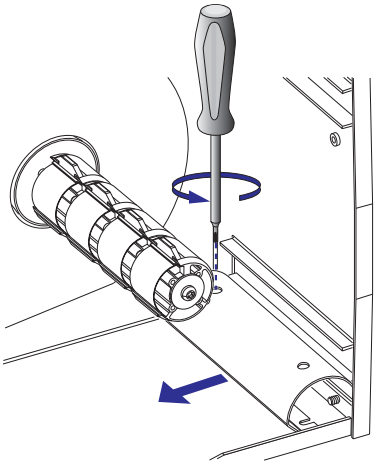
2 Turn the printhead lift lever counter-clockwise to raise the printhead.



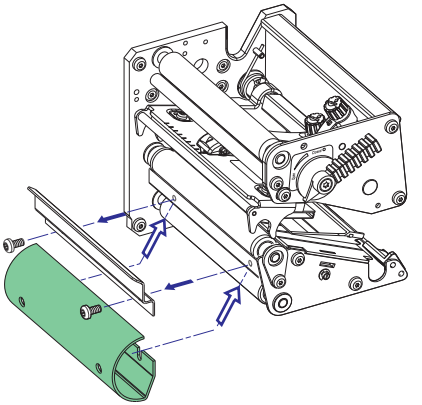
3 Remove any empty core from the media supply hub.



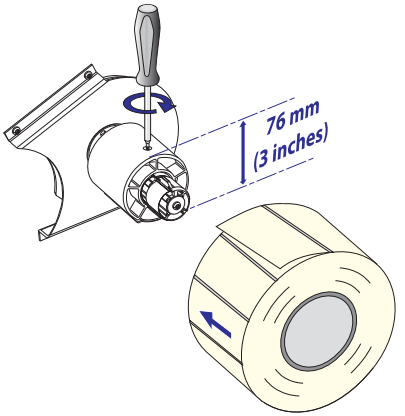
4 Loosen the single screw that holds the guide plate at the rear of the media compartment.



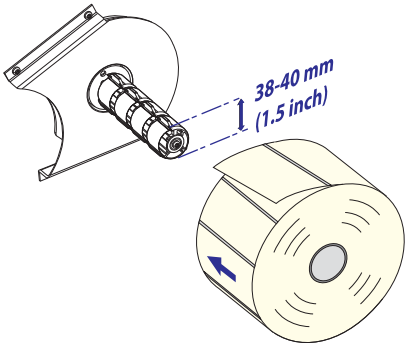
5 Remove the tear bar from the print unit and replace it with the guide plate.



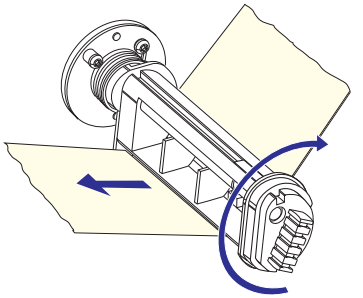
6 In the case of a media roll with a 76 mm (3 in) core, fit an adapter on the media supply hub.



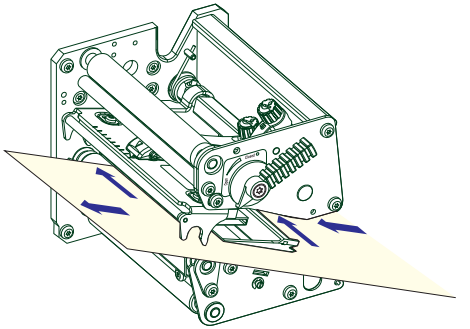
7 Fit a new roll of media onto the media supply hub and push the roll inwards as far as it will go.



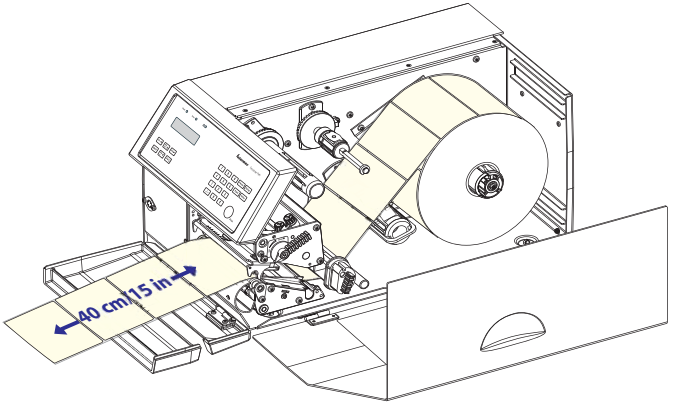
8 Route the media underneath the slack absorber and forward towards the print mechanism. The slack absorber can be rotated for better access and then snap-locked in open position.



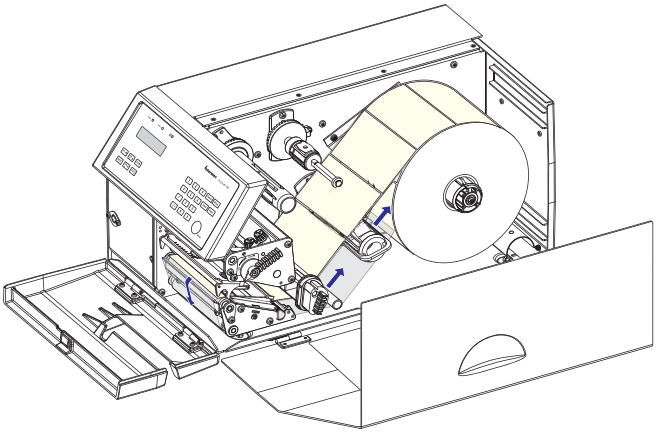
9 Route the media through the print unit and push it inwards as far as it will go.



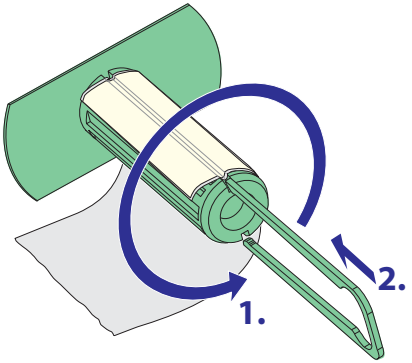
10 Pull out approximately 40 cm (15 in) of labels.



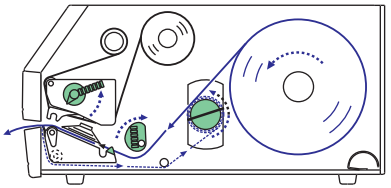
11 Route the labels around the guide plate and back under the print unit to the takeup hub



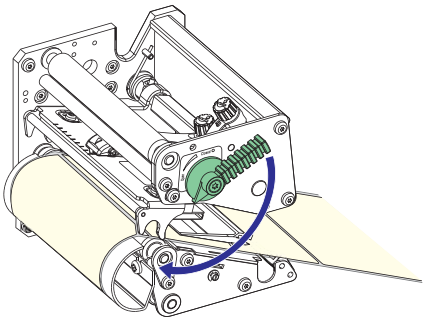
12 Wind up some of the media on the takeup hub (1) and secure it with the green clip (2).



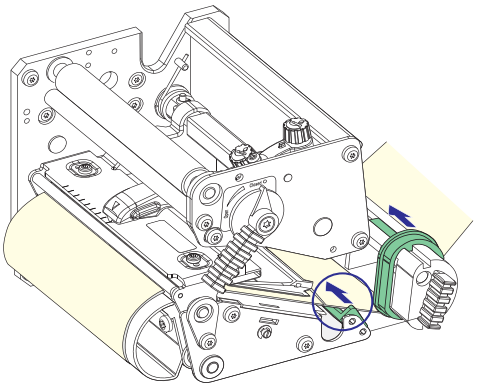
13 This diagram shows the path the media will take through the printer.



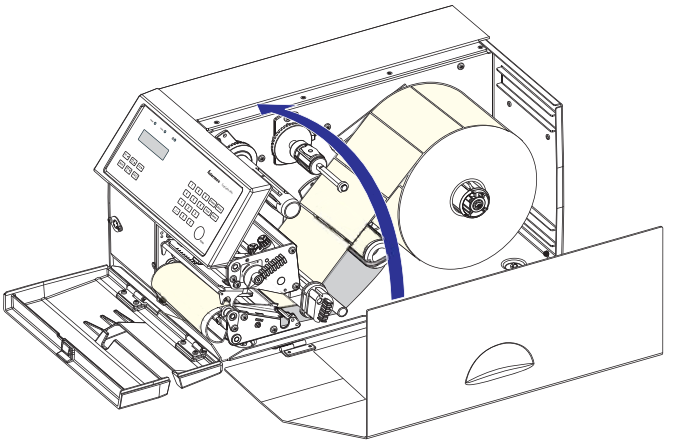
14 Turn the printhead lift lever to the “closed” position.



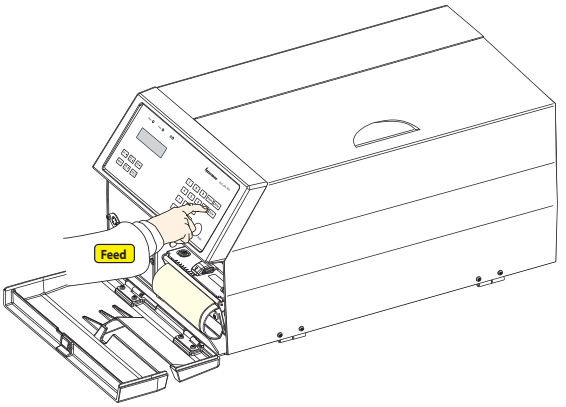
15 Adjust the position of the green edge guides so that the media is guided with a minimum of play.



16 Close the side door, but keep the front door open.



17 Press **Feed** to advance the media and adjust the media feed.



External Supply (Fanfold)

This section describes the case when an external media supply is used such as a stack of fanfold tickets or an external media roll.

It is possible to simply let the media enter the printer through either of the two slots in the rear plate. However, we recommend the optional Intermec Fanfold Kit, which provides adjustable guides to more accurately guide the media into the printer. The Fanfold Kit can be fitted to either the upper or the lower slot in the rear plate.

When using an external media supply, take care to protect the media from dust, dirt, and other foreign particles that can impair the printout quality or cause unnecessary wear to the printhead.

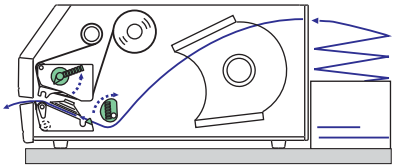
Depending on brand and quality, all direct thermal media are more or less sensitive to heat, direct sunlight, moisture, oil, plasticizers, fat, and other substances. Protect the media accordingly.

External supply can be used for:

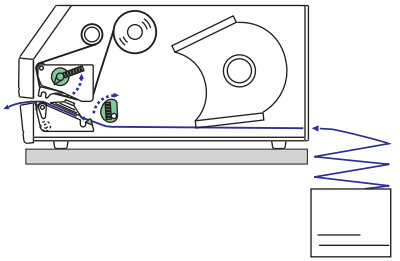
- Tear-off operation
- Cut-off operation
- Peel-off operation (upper slot only)
- Internal batch takeup operation

To load media for external supply operation

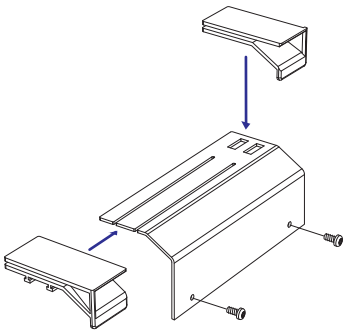
1 Use the upper slot in the rear plate when the supply is at the same level as the printer or when using peel-off operation.



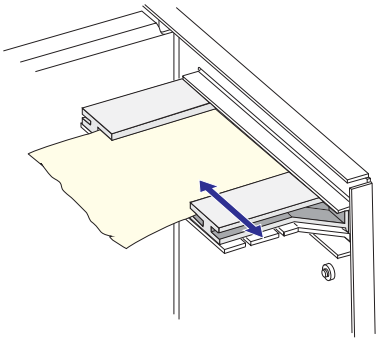
2 Use the lower slot in the rear plate when the supply is placed lower than the printer.



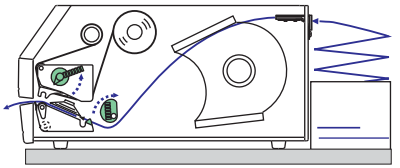
3 The printer can be fitted with an optional set of fanfold guides in either slot.



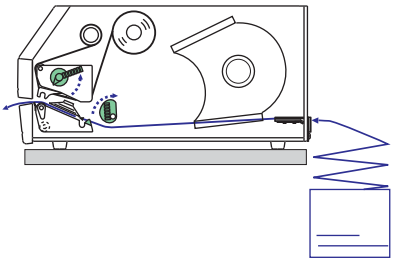
4 The outer guide is adjustable for various media widths. The minimum is 40 mm (1.58 in).



5 Fit the fanfold guide into the upper slot in the rear plate when the supply is at the same level as the printer or when using peel-off operation.



6 Fit the fanfold guide into the lower slot in the rear plate when the supply is placed lower than the printer.



5 Loading Ribbon for Thermal Transfer Printing

This chapter explains how to load the printer with ribbon for thermal transfer printing.

Loading Ribbon

The EasyCoder PX4i printer can print on labels, tickets, tags, and continuous stock using either direct thermal printing on special heat-sensitive media or thermal transfer printing using a special ink-coated ribbon.

Thermal transfer printing makes it possible to use a wide range of receiving face materials and gives a durable printout less vulnerable to fat, chemicals, heat, sunlight etc. than direct thermal printing. Make sure to select a type of ribbon that matches the type of receiving face material and to set up the printer accordingly.

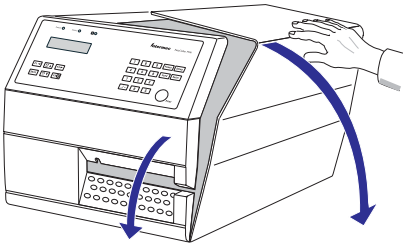
The EasyCoder PX4i printer can use transfer ribbon rolls wound with the ink-coated side facing either outward or inward. Illustrations in this manual show the ink-coated side facing inward.

Ribbon is usually loaded in connection with media replenishment, but loaded media is not shown in the illustrations in this chapter in order to give a clearer view of the ribbon path. For media load instructions, see **"Loading Media" on page 23**.

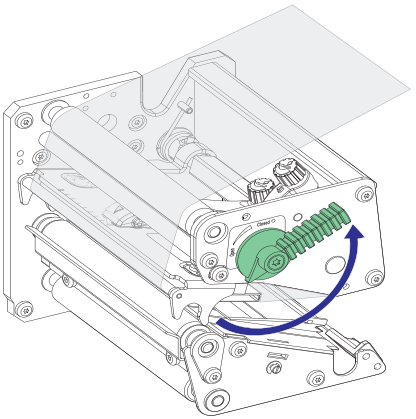
Most transfer ribbons do not smear at room temperature.

To load ribbon for thermal transfer operation

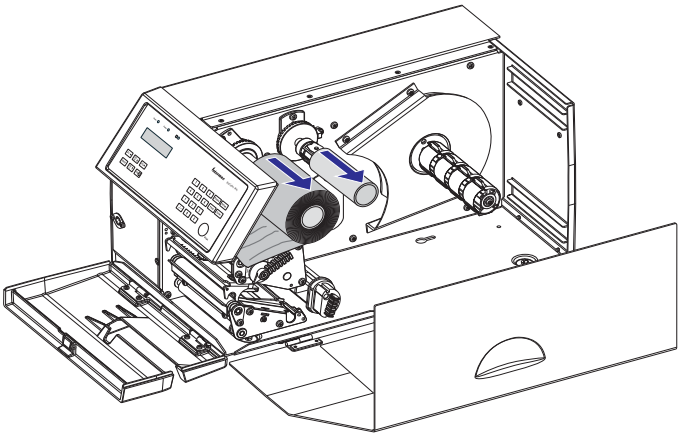
1 Open the front and side doors.



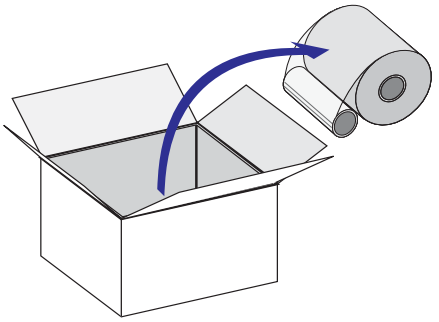
2 Turn the printhead lift lever counterclockwise to raise the printhead.



3 Remove any used ribbon and the empty ribbon core.

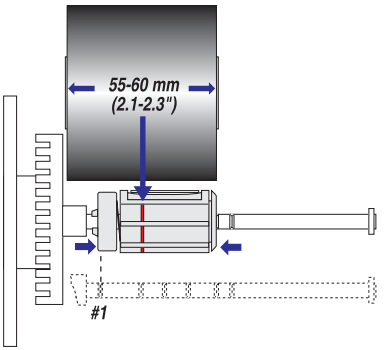


4 Unpack a roll of original Intermec thermal transfer ribbon.

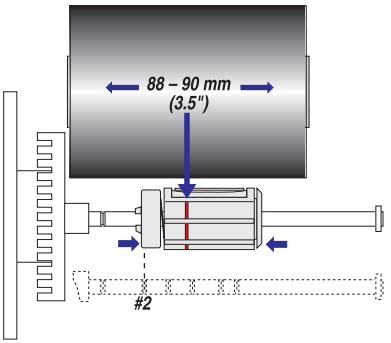


5 Adjust the ribbon supply bobbin for your ribbon:

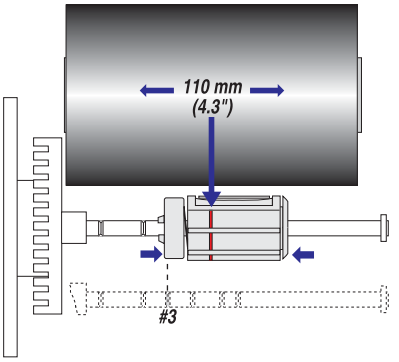
a If your ribbon is 55 to 60 mm (2.16 to 2.3 in) wide, compress the ribbon supply bobbin and move it so it snaps into the first (innermost) groove.



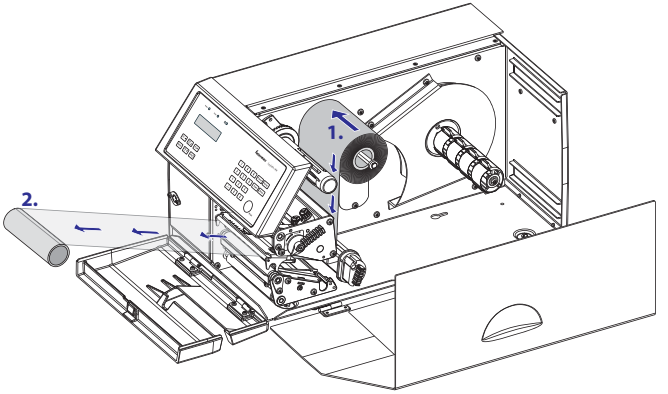
b If your ribbon is 88 to 90 mm (3.5 in) wide, compress the ribbon supply bobbin and move it so it snaps into the second groove.



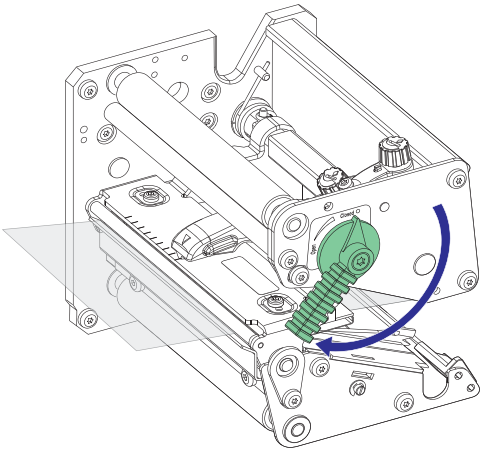
c If your ribbon is 110 mm (4.3 in) wide, compress the ribbon supply bobbin and move it so it snaps into the third (outermost) groove.



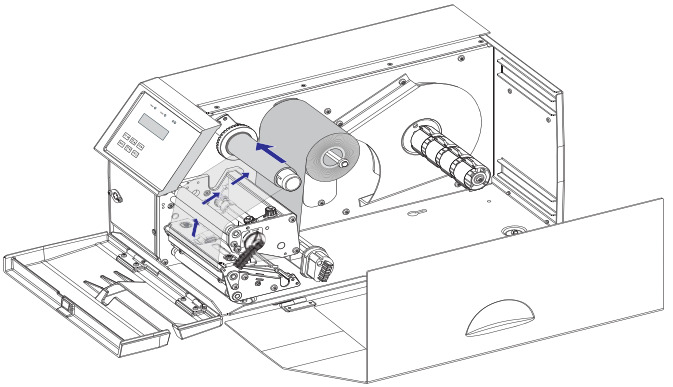
4 Press the ribbon roll onto the ribbon supply bobbin (1) and route the ribbon through the print unit. Pull out 20 cm (8 in) of ribbon.



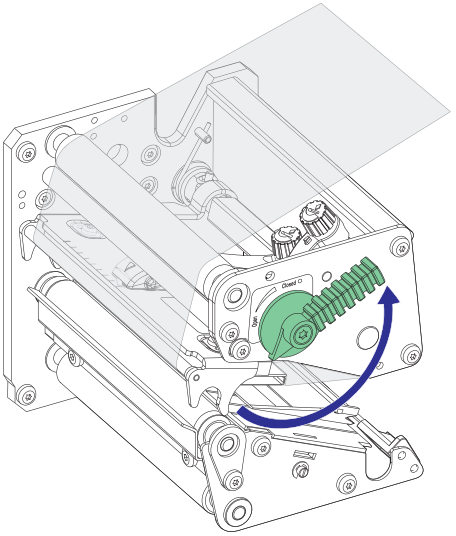
5 Without releasing the ribbon, turn the printhead lift lever to "closed" position to lock the ribbon.



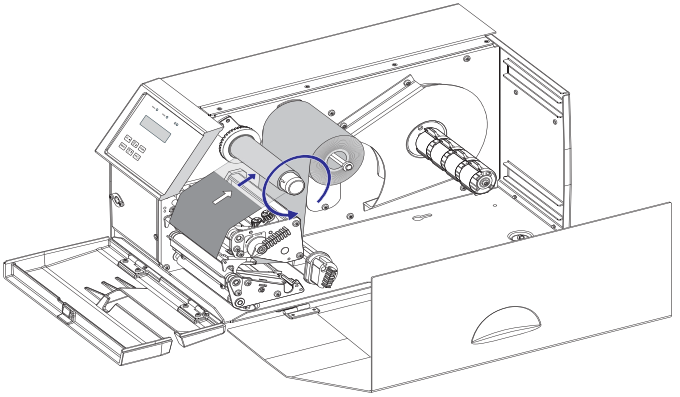
6 Press the cardboard core at the front end of the ribbon onto the rewind hub. During printing, the rewind hub will rotate counterclockwise.



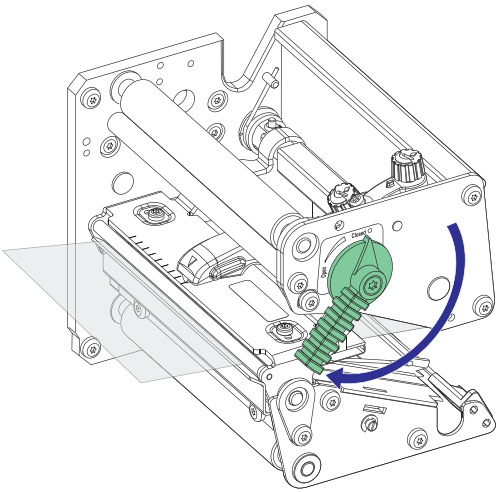
7 Turn the printhead lift lever to the “open” position.



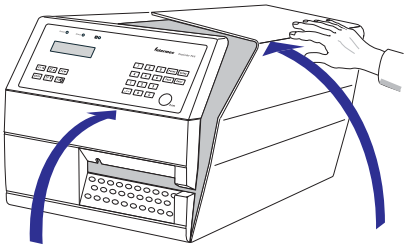
8 Wind up the ribbon until all of the transparent leader has passed the printhead and the ribbon becomes tight.



9 Turn the printhead lift lever to “closed” position.



10 Close the front and side door.



6 Setting Up the Printer

This chapter describes the various parameters that are used during Setup mode or in the various application programs to configure the printer for the user's specific requirements. It covers the following topics:

- Description
- Default Setup
- Setup parameters for communication, test/service, media, and configuration.

When measurements are specified as "dots", the actual length in millimeters or inches depends on the printhead density. Convert as follows:

8 dots/mm (203 dots/inch) printhead:

1 dot = 0.125 mm = 0.0049 in (4.9 mils)

11.81 dots/mm (300 dots/inch) printhead:

1 dot = 0.085 mm = 0.0033 in (3.3 mils)

Description

The setup controls the printer in regard of serial communication, test and service operations, and specifies which types of media and ribbon are loaded in the printer.

Check the list below to see if the printer's default setup matches your requirements. If not, you will have to change the setup. To enter the Setup Mode, press **Setup** on the printer's built-in keyboard and follow the instructions in "Setup Mode" on page 77.

Setup Mode

- Press **Setup** on the printer's built-in keyboard to enter the Setup Mode.
- Select the Setup option in Intermec Shell to enter the Setup Mode.
- Execute the Intermec Fingerprint SETUP instruction to enter the Setup Mode.
- Access the Setup Mode via the printer's home (requires an optional EasyLAN interface board).

See "Setup Mode" on page 77 and the EasyLAN documentation.

Intermec Fingerprint

- Use setup strings to change individual setup parameters remotely from the host.
- Use setup files to create sets of setup parameters remotely from the host.

See the Intermec Fingerprint v8.3x manuals.

Intermec Direct Protocol

- Use setup strings to change individual setup parameters remotely from the host.

See the Intermec Direct Protocol v8.3x manuals.

Default Setup

The printer's default setup is listed below, with no options included.

Ser-Com "uart1:"	
Baud rate	9600 bps
Character length	8 bits
Parity	None
Stop bits	1 bit
RTS/CTS	Disable
ENQ/ACK	Disable
XON/XOFF, data to host	Disable
XON/XOFF, data from host	Disable
New line	CR/LF
Receive buffer	1024 bytes
Transmit buffer	1024 bytes

Feed Adjust	
Start adjust	0 dots
Stop adjust	0 dots

Media	
X-Start	24 dots
Width	424 dots
Label length	1200 dots
Media type	Label (with Gaps)
Paper type	Thermal transfer
Ribbon Constant	90
Ribbon factor	25
Label offset	0
Ribbon sensor (low diameter)	0 mm
Contrast	0%

Media	
Paper sensor (low diameter)	0 mm

Configuration	
Print speed	200 mm/sec.

Reading the Current Setup

The printer's current setup values can be read from the printer's display window by browsing through the Setup Mode.

You can list the printer's current setup values by printing test label "Setup Info" in the Setup Mode or by using Intermec Shell.

The current setup values can be sent to the host via the standard serial communication channel using a SETUP WRITE "uart1:"statement. For more information. see *Intermec Fingerprint v8.3x, Programmer's Reference Manual* (P/N 933-054-xxx).

Setup Parameters

Serial Communication

The serial communication parameters control the communication between the printer and the connected computer or other devices on the serial port "uart1:" and the optional serial ports "uart2:", "uart3:", "uart4:", and "uart5:". The optional ports require one or two optional interface boards. The printer's firmware detects if an interface board is installed in the printer and presents additional sets of commu-nication setup menus depending on type of communication (refer to the overviews in "Setup Mode" on page 77).

Note: The serial communication parameters have no effect on parallel or EasyLAN communications., or on the IN and OUT ports on the optional Serial/Industrial Interface Board.

For the serial communication channel "uart1:", the following parameters can be set. Make sure the printer's communication parameters match the setup of the connected device or vice versa. If the setup of the printer and the setup of the host do not match, the response from the printer to host will be garbled.

Baud Rate

The baud rate is the transmission speed in bits per second. There are 10 options:

- 300
- 600
- 1200
- 2400
- 4800
- 9600 (default)
- 19200
- 38400
- 57600
- 115200

Character Length

The character length specifies the number of bits that will define a character. Eight bits are recommended, because that option allows more special characters and characters specific for foreign languages to be used. Refer to the *Intermec Fingerprint v8.3x, Programmer's Reference Manual* for more information.

- 7 Characters ASCII 000 to 127 decimal
- 8 Characters ASCII 000 to 255 decimal (default)

Parity

The parity decides how the firmware will check for transmission errors. There are five options:

- None (default)
- Even
- Odd
- Mark
- Space

Stop Bits

The number of stop bits specifies how many bits will define the end of a character. There are two options:

- 1 (default)
- 2

Flow Control

RTS/CTS is a protocol where the communication is controlled by currents through separate lines in the cable being set either to high or low. By default, this option is disabled.

RTS high indicates that the transmitting unit is able to receive characters. RTS low indicates that the receive buffer is filled to 75% (see XON/ XOFF).

CTS high indicates that the unit transmitting the CTS signal is ready to receive data. CTS low indicates that the receive buffer is full (see XON/ XOFF). In some computer programs, for example MS Windows Terminal, RTS/CTS is designated “Hardware.”

ENQ/ACK is a protocol where the communication is controlled by the control characters ENQ (ASCII 05 dec.) and ACK (ASCII 06 dec.) being transmitted on the same line as the data. The sending unit transmits ENQ at regular intervals. If the response ACK is not received, the transmission is held up awaiting an ACK character from the receiving unit. By default, ENQ/ACK is disabled.

XON/XOFF is a protocol where the communication is controlled by the control characters XON (ASCII 17 dec.) and XOFF (ASCII 19 dec.) being transmitted on the same line as the data. XON/XOFF can be enabled/disabled separately for data received from the host by the printer (printer sends XON/XOFF) and for data transmitted to the host from the printer (host sends XON/XOFF).

XOFF is sent from the printer when its receive buffer is filled to 75%, and the transmission from the host is held, waiting for an XON character. When enough data has been processed so the receive buffer is filled only to 50%, the printer sends an XON character and the host resumes transmitting data. The same principles apply to XON/XOFF sent by the host, even if the percentage figure may differ. By default, XON/XOFF is disabled for data in both directions.

New Line

Selects the character(s) transmitted from the printer to specify the switch-ing to a new line. There are three options:

- CR/LF ASCII 13 + 10 decimals (default)
- LF ASCII 10 decimals
- CR ASCII 13 decimals

Receive Buffer

The receive buffer stores the input data before processing. Default size is 1024 bytes.

Transmit Buffer

The transmit buffer stores the output data to be transmitted before transmission. Default size is 1024 btyes.

Feed Adjust

The Feed Adjust part of the Setup Mode controls how much of the media is fed out or pulled back before and/or after the actual printing. These settings are global and will be effected regardless of which program is run.

Note: The firmware uses the front edges of labels with gaps, the ends of detection slots, and the forward edges of black marks for detection, all seen in relation to the feed direction.

Start Adjust

The Start Adjust value is given as a positive or negative number of dots (1 dot = 0.125 mm = 4.9 mils). Default value is 0, which places the origin a certain distance back from the forward edge of the copy.

- A **positive** start adjustment means that the specified length of media will be fed out before the printing starts. Thus, the origin is moved further back from the forward edge of the copy.
- A **negative** start adjustment means that the specified length of media will be pulled back before the printing starts. Thus, the origin is moved towards the forward edge of the copy.

Stop Adjust

The Stop Adjust value is given as a positive or negative number of dots (1 dot = 0.125 mm = 4.9 mils). Default value is 0, which stops the media feed in a position suitable for tear off operation.

- A **positive** stop adjustment means that the normal media feed after the printing is completed will be increased by the specified value.
- A **negative** stop adjustment means that the normal media feed after the printing is completed will be decreased by the specified value.

Recommended Feed Adjustments

The following settings allow printing from the top of the label. Minor deviations from the recommended values may be required due to various combinations of media types, roll size, type of media supply device, and individual differences between printers.

Adjustment type	8 dots/mm 203.2 dpi	11.81 dots/mm 300 dpi	Distance
Tear-Off (Straight-through)			
Start adjust	-108 dots	-160 dots	13.5 mm/ 0.54 in
Stop adjust	0 dots	0 dots	0
Peel-Off (Self-strip)			
Start adjust	-80 dots	-118 dots	10 mm/0.39 in
Stop adjust	-40 dots	-60 dots	5 mm/0.20 in
Cut between labels with gaps			
Start adjust	-287 dots	-424 dots	35.9 mm/1.41 in
Stop adjust	+176 dots	+260 dots	22 mm/0.87 in
Cut fix and variable length strip			
Start adjust	-294 dots	-434 dots	36.8 mm/1.45 in
Stop adjust	+298 dots	+440 dots	37.3 mm/1.47 in

Media

The media parameters tell the firmware the characteristics of the media that will be used, so the printout will be positioned correctly and get the best quality possible.

Media Size

The size of the printable area is defined by three parameters; X-Start, Width, and Length.

X-Start

Specifies the position of the origin along the dots on the printhead.

By default, X-Start is 24 dots, which places the inner margin of the print area 3 mm (0.118 in) from the inner edge of the media and gives a maximum print width of 424 dots (53 mm/2.087 in). This prevents printing outside labels when the liner is slightly wider than the labels.

If you want to use the entire media width, reset the X-Start value to 0 which gives a maximum print width of 448 dots (56 mm/2.205 in).

By increasing the value for the X-Start parameter, the origin will be moved outwards, away from the inner edge of the media path. In other words, the larger X-Start value, the wider inner margin and the less available print width.

Width

Specifies the width of the printable area in number of dots from the origin. Thus, the sum of the X-Start and width values gives the outer margin of the printable area. The width should be set to prevent printing outside the media, which may harm the printhead.

Length

Specifies the length of the printable area in number of dots from the origin along the Y-coordinate and allocates memory space for two identical image buffers in the printer's temporary memory.

The size of each buffer can be calculated using this formula:

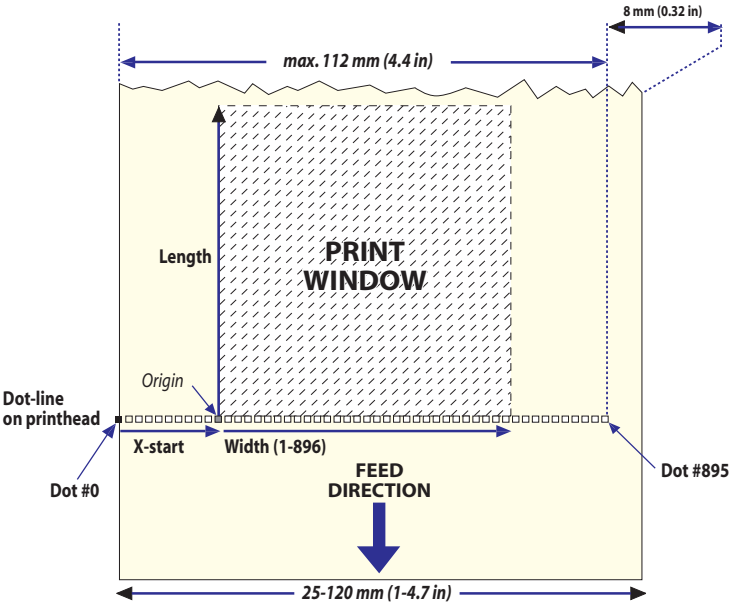
```
Buffer size (bits) = [Print length in dots] x
[Printhead width in dots]
```

Note: The temporary memory has other functions that also require some memory space. To obtain a longer print area, the memory can be increased by fitting a larger SDRAM SIMM on the printer's CPU board as described in the Service Manual.

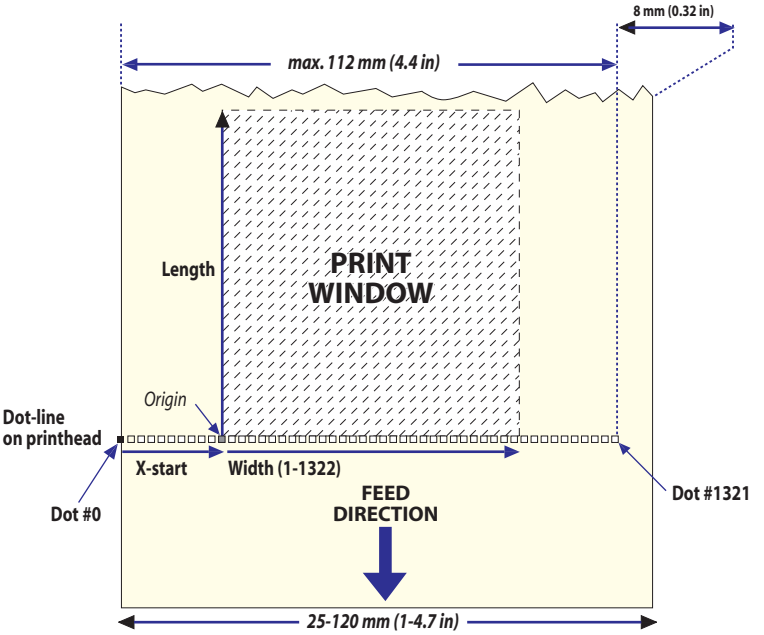
- The length setup also decides the amount of media feed when using "fix length strip."
- The length setup creates an emergency stop, which works when the printer is set up for "Label (with gaps)", "Ticket (with mark)", or "Ticket (with gaps)." If the label stop sensor

(LSS) has not detected a gap or mark within 150% of the set length, the media feed is automatically stopped to avoid feeding out a whole roll of media, because of an LSS malfunction.

By setting up the X-Start, the Width, and the Length, you will create a print window inside which the printing can be performed. Any object or field extending outside the print window in any direction will either be clipped or cause an error condition (Error 1003 "Field out of label"), see *Intermec Fingerprint v8.xx, Command Reference Manual*.



Print Window 8 dots/mm (203.2 dpi) printhead



Print Window 11.81 dots/mm (300 dpi) printhead

Media Type

The Media Type parameters control how the label stop sensor (LSS) and the media feed work. There are five media type options:

- Gap is used for adhesive labels mounted on liner (backing paper) or continuous paper stock with detection slots. Default.
- Mark is used for labels, tickets, or strip provided with black marks at the back.
- Continuous is used for continuous stock without any detection slots or black marks.
- Label (with gaps) is used for adhesive labels mounted on liner.
- Ticket (with mark) is used for labels, tickets, or continuous stock provided with black marks at the back.

- Ticket (with gaps) is used for tickets and tags with detection slits.
- Fix length strip is used for continuous stock where the length of the print window decides the length of media to be fed out.
- Var length strip is used for continuous stock. The size of the print image decides the length of each copy.

It is important to select the correct media type, so the printer can indicate the following errors.

- Error 1005 "Out of paper" indicates that the last ordered copy could not be printed because of an empty media stock.
- Error 1031 "Next label not found" indicates that the last ordered label or ticket was successfully printed, but no more labels/tickets can be printed because of an empty media stock.

Paper Type

The Paper Type parameters control the heat emitted from the printhead to the direct thermal media or optionally the transfer ribbon in order to produce the dots that make up the printout image. Labels, tickets, tags, strip, and ribbons for various types of application are available from Intermec. For the best printout quality and maximum life of the printhead, use Intermec supplies. Setup recommendations for Intermec supplies offered in Europe and North America are listed in Appendix D.

As a general rule, high energy and/or high print speed will shorten the life of the printhead. Never use higher paper type and print speed settings than necessary for obtaining an acceptable printout quality and throughput speed.

If the ambient temperature is lower than +15°C (+59°F), decrease the speed by 50 mm/sec.

Start by choosing between two alternatives:

- Direct Thermal printing (default)
- Thermal Transfer printing (option)

Your choice will decide which parameters to enter next:

Direct Thermal Printing

- Label Constant (range 50 to 115)
- Label Factor (range 10 to 50)

When adjusting the image darkness for non-Intermec direct thermal media, set the Label Factor to the recommended value for the type of direct thermal media. Set the Label Constant to the value listed below and decrease or increase it for lighter or darker images respectively until you are satisfied with the printout quality.

Paper Type Settings Guide (Direct Thermal)

Sensitivity[1]	Label Constant	Label Factor	Max. Print Speed
Low	100	50	150
Standard	90	50	150
High	80	50	200
Ultra High	70	50	200

1. Note that the preprint and varnish decrease the sensitivity of direct thermal media.

Thermal Transfer Printing

- Ribbon Constant (range 50 to 115)
- Ribbon Factor (range 10 to 50)
- Label Offset (range -50 to 50)
- Ribbon Sensor (auto-adjustment)
- Low Diameter (range 25 to 80 mm)

When adjusting the image darkness for non-Intermec media and transfer ribbons, set the Ribbon Factor to the recommended value for the type of thermal transfer ribbon. Set the Ribbon Constant to the value listed below and decrease or increase it for lighter or darker images respectively until you are satisfied with the printout quality. The Label Offset parameter is presently not used, so keep it at the default value 0.

Paper Type Settings Guide (Thermal Transfer)

Type	Ribbon Constant	Ribbon Factor	Max. Print Speed
Wax (Europe)	70	25	150
Wax (U.S.A.)	70	25	150

Paper Type Settings Guide (Thermal Transfer) (continued)

Type	Ribbon Constant	Ribbon Factor	Max. Print Speed
Wax/Resin (Europe)	80	25	150-200
Wax/Resin (U.S.A.)	90	25	150-200
Resin (Europe)	90	30	200
Resin (U.S.A.)	95	30	200

The Ribbon Sensor parameter is read-only. When performing a Testfeed or pressing **Enter** when the Ribbon Sensor menu is displayed, the printer will feed out some media and autoadjust the sensor. The resulting setting is displayed in the menu.

The Low Diameter parameter specifies the diameter of the ribbon supply roll, where SYSVAR(26) switches from 0 to 1. SYSVAR(26) = 0 means that there is still a sufficient supply of ribbon, whereas SYSVAR(26) = 1 means that it is time to consider replacing the ribbon supply. The diameter is expressed in millimeters (1 mm = 0.04 in.) and an accuracy of ±3 mm can be expected. Note that this setting has little effect unless SYSVAR(26) is read by a Fingerprint program. However, Error 1083 “Ribbon Low” is reported at every tenth printing operation. By default, the low diameter is 0, that is, the ribbon low function is disabled.

Contrast

Use the contrast parameter to make minor adjustments of the blackness in the printout, for example to adapt the printer to variations in quality between different batches of the same media. 11 options are displayed in an endless loop from -10% to +10%. Default value is 0%. The contrast is reset to the default (±0) whenever a new paper type is specified, regardless which method has been used.

Testfeed

The sensitivity of the label stop sensor (LSS) may need to be adjusted when switching from one type of media to another. This is especially the case when using adhesive labels since the transparency of the liner (backing paper) may vary. When the Testfeed menu is displayed, press **Enter**. A number of blank copies will be fed out until the firmware has decided the proper setting for the LSS. At the same time, the front edges of the labels, tickets, etc. are detected so the feed control can position the media according to the Feed Adjust parameter (same as the Intermec Fingerprint statement TESTFEED). Four values used for troubleshooting the LSS are displayed (read-only information).

Print Defines

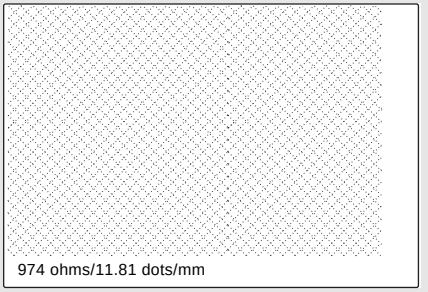
Head Resistance

The printhead resistance is measured automatically at startup (read-only information).

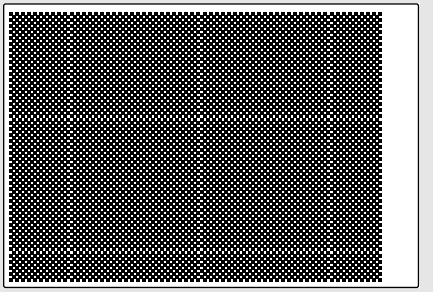
Testprint

The test labels “Diamonds”, “Chess”, “Bar Codes #1”, and “Bar Codes” are used to check the printout quality and facilitate adjustment of the printhead pressure, see **“Printhead Pressure” on page 131**. The test labels “Setup Info” and “Hardware info” list the printer’s current setup and the installed electronic devices. Test label “Network Info” is only printed if the printer has an optional EasyLAN interface board. If the information does not fit on one label, two or more labels will be printed. If the printer refuses to print a test label, press **F5/i** to find out what is wrong, for example “printhead lifted” or “out-of paper”.

Test Labels

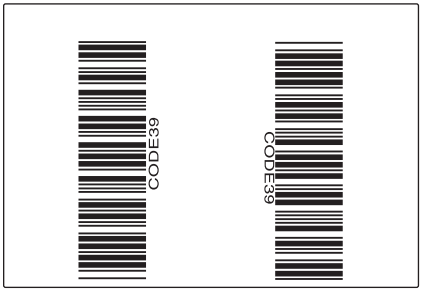


Diamonds

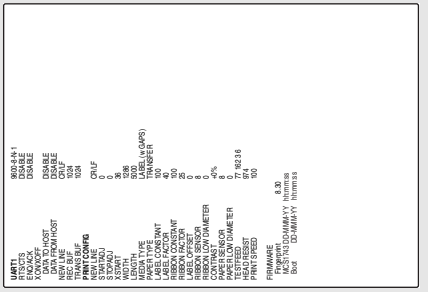


Chess

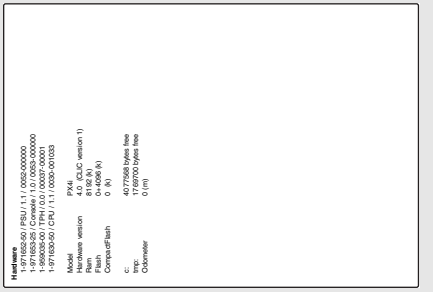
Bar Codes #1



Bar Codes #2



Setup Info



Hardware Info

Print Speed

The print speed is variable between 100 and 300 mm/sec. Generally, the lower the speed, the better the printout quality. This is especially true when printing bar codes with the bars running across the media path ("ladder style"), when printing on demanding face materials, and when printing at low ambient temperatures. The default setting is 200 mm/sec (approximately 8 in/sec).

Refer to "Intermec Supplies" on page 161 for recommended maximum print speed for various combinations of Intermec media and transfer ribbon.

LSS Test

The function on the label stop sensor (LSS) can be tested automatically or manually as described in "Adjustments" on page 129.

LTS (Label Taken Sensor)

The sensitivity of the LTS can be tested and adjusted as described in "Adjustments" on page 129.

Returning to Factory Default Setup

There are two ways to return to the factory default setup of the printer:

- Insert a special CompactFlash memory card and restart the printer.
- Use the printer's built-in keyboard.

To return to factory default setup using the keyboard

1. Lift the printhead.
2. Switch on the power to the printer and press **F5/i** and wait until the printer beeps.

   Quickly press the following keys:
   ▼/F4, **▲/F2**, **▲/F2**, **◄/F1**
3. The following message will be displayed:

```
Factory Default?
Enter=Yes ESC=No
```

4 Within 10 seconds, press **Enter** to reset the printer to factory default. The parameters will be reset and the printer will continue the normal startup.

If you press **▲/F2** or wait until the 10 seconds time-out has passed, the normal startup process will continue without any reset being performed.

Note: If any of the files "card:NOSHELL.CFG", rom:NOSHELL.CFG", or "c:NOSHELL.CFG"exists in the printer's memory, no reset to factory default will be performed.

The factory default will remove all files used to store settings. It will not reset settings that already has been read when the files are removed. This means that EasyLAN Wireless settings (SSID, keys, etc.) will retain their values from the previous start. However, the next reboot will reset them to factory default.

7 Setup Mode

This chapter describes how to enter the setup mode at installation, explains how to navigate in the setup mode, and provides overviews over which parameters and messages are available for the standard printer and with various interface boards.

Entering Setup Mode at Installation

The method of entering the Setup Mode depends on which startup files are stored in the printer's memory, a subject that was more thoroughly discussed in "Startup Files" on page 18.

EasyCoder PX4i with Intermec Shell

1. Switch on the power.
2. When the display shows the message "Enter=Shell; x sec...", press **Enter**.
3. Press **Setup** (this facility can be used anywhere within Intermec Shell).
4. Set up the printer as described in this chapter.
5. Return to Intermec Shell by pressing **Setup**.

EasyCoder PX4i with a custom-made application program

Normally, there is no need to enter the Setup Mode when using application programs that start up automatically. Necessary provisions for changing the setup, manually or automatically, should be provided by the program.

Navigating in Setup Mode

Enter the Setup Mode by pressing **Setup** on the printer's front panel. Text in the display guide you through the setup procedure. Use the printer's keyboard to navigate menus, acknowledge displayed values, or select or enter new values.

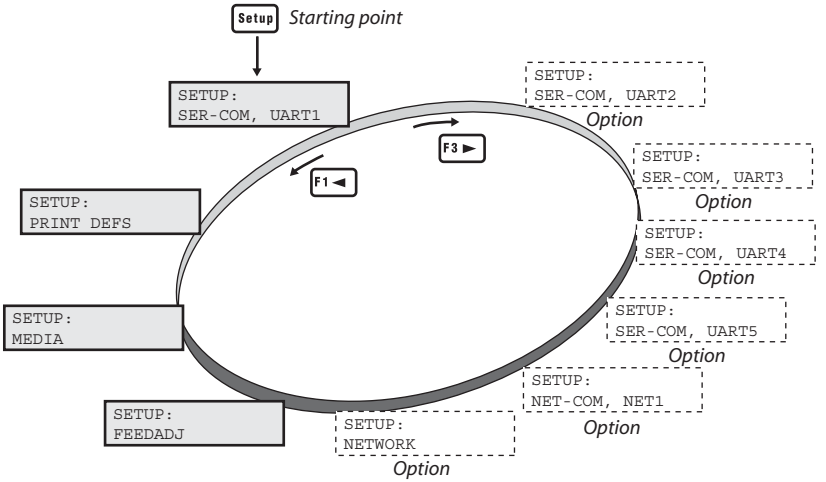
Note: An external keyboard cannot be used inside the Setup Mode.

Keyboard Buttons for Setup Mode

Button	Function
F1 ◄	Move one menu to the left on the same level or scroll back in a stack of options.
F2 ESC ▲	Move up one level.
F3 ►	Move one menu to the right on the same level or scroll forward in a stack of options.
F4 ▼	Move down one level.
F5 ⓘ	Display error messages at test label printing failure.
0 – 9	Enter numeric values.
. /–	Specify negative values (leading position).
C	Clear displayed values.
Enter	Acknowledge and move to next menu or perform test feeds in the Testfeed menu, or print test labels in the Test label menu.
Setup	Exit the Setup Mode. Can be used anywhere in Setup Mode.

The Setup Mode is organized as an endless loop, from which you can select a number of sub-categories. with a number of sub-categories. At startup, the firmware determines if options such as label taken sensor or an interface board are installed in the printer. Only installed options are shown in the Setup Mode.

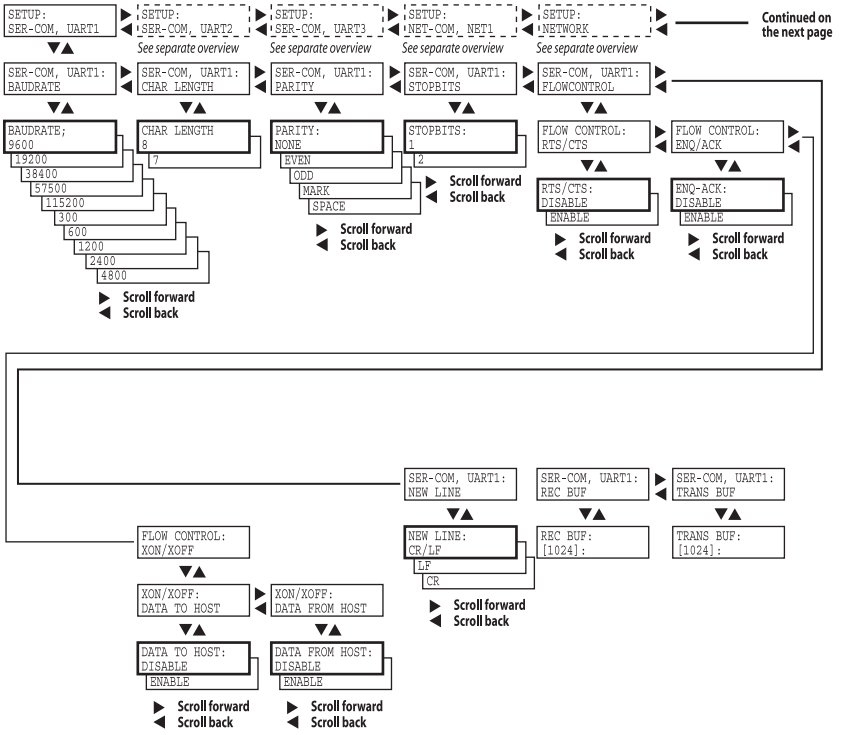
The diagram below shows the options in the main loop. Detailed overviews are shown on the following pages.



Setup Modes

Serial Communication "uart1:"

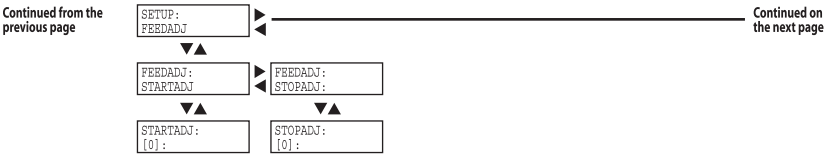
(Intermec Fingerprint v8.30)



Legend:
Dotted boxes and lines indicate options.
Thick boxes indicates default options.
Values inside brackets indicate default settings.

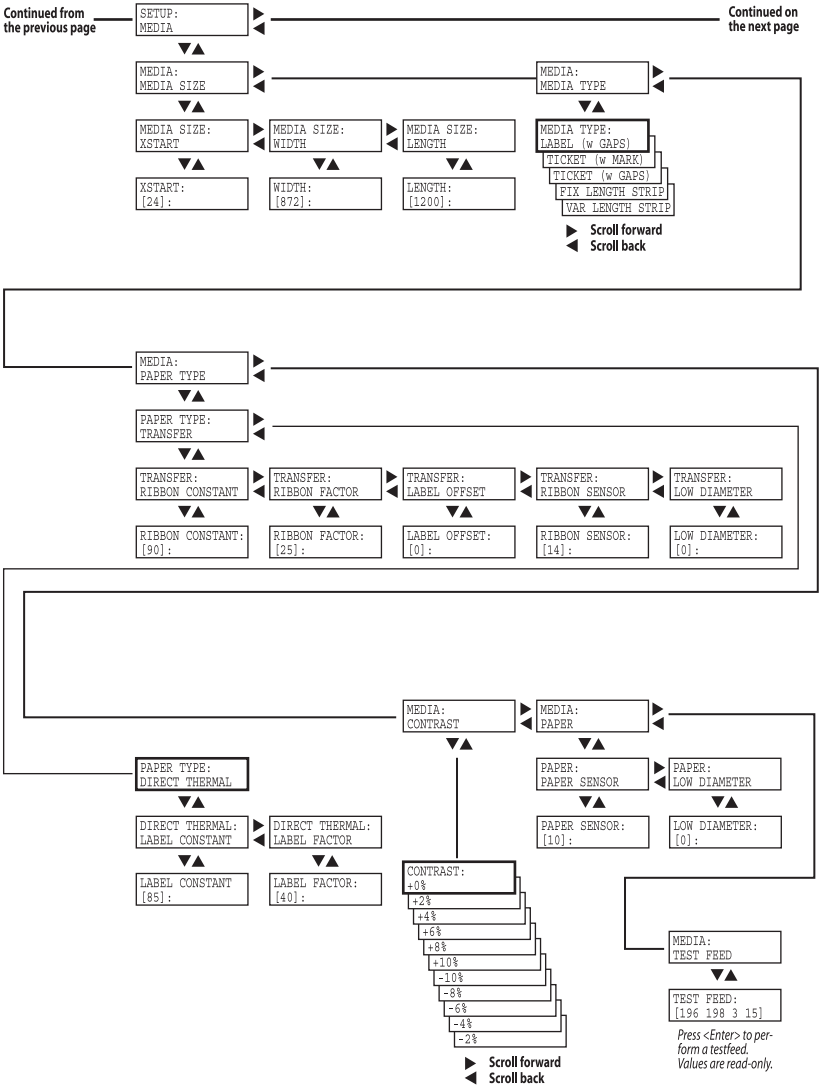
Feed Adjust

(Intermec Fingerprint v8.30)



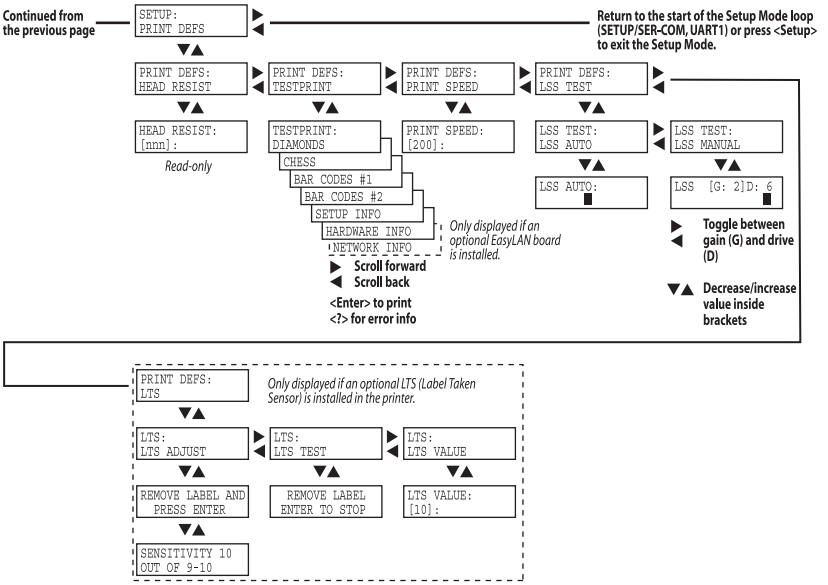
Media

(Intermec Fingerprint v8.30)



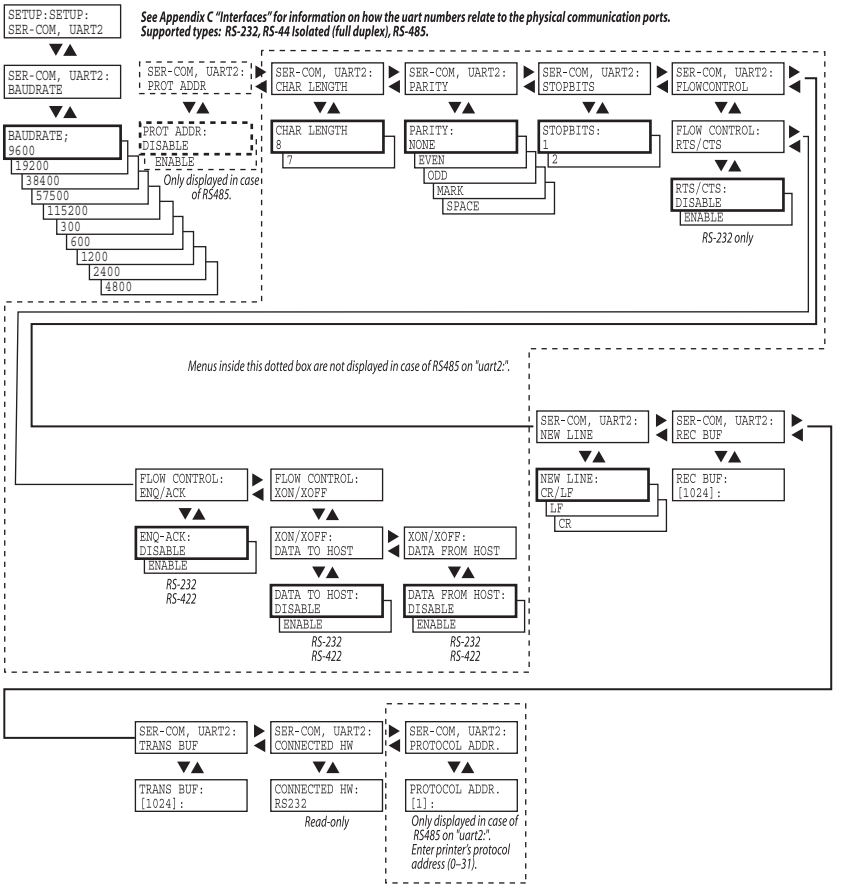
Print Defs

(Intermec Fingerprint v8.30)


Continued from the previous page
SETUP: PRINT DEFS
Return to the start of the Setup Mode loop (SETUP/SER-COM, UART1) or press <Setup> to exit the Setup Mode.
PRINT DEFS: HEAD RESIST
PRINT DEFS: TESTPRINT
PRINT DEFS: PRINT SPEED
PRINT DEFS: LSS TEST
HEAD RESIST: [nnn]:
Read-only
TESTPRINT: DIAMONDS
CHESS
BAR CODES #1
BAR CODES #2
SETUP INFO
HARDWARE INFO
NETWORK INFO
Only displayed if an optional EasyLAN board is installed.
PRINT SPEED: [200]:
LSS TEST: LSS AUTO
LSS AUTO:
LSS TEST: LSS MANUAL
LSS [G: 2]D: 6
Toggle between gain (G) and drive (D)
Decrease/increase value inside brackets
Scroll forward
Scroll back
<Enter> to print
<?> for error info
PRINT DEFS: LTS
Only displayed if an optional LTS (Label Taken Sensor) is installed in the printer.
LTS: LTS ADJUST
LTS: LTS TEST
LTS: LTS VALUE
REMOVE LABEL AND PRESS ENTER
REMOVE LABEL ENTER TO STOP
LTS VALUE: [10]:
SENSITIVITY 10 OUT OF 9-10

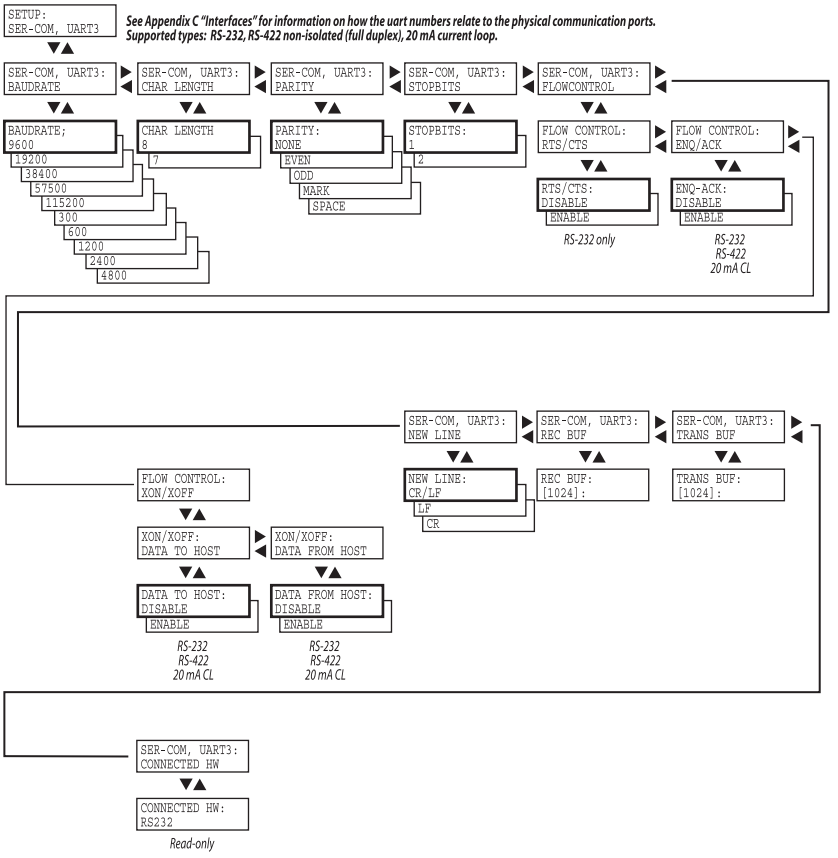
Serial Communication "uart2:" (option)

(Intermec Fingerprint v8.30)



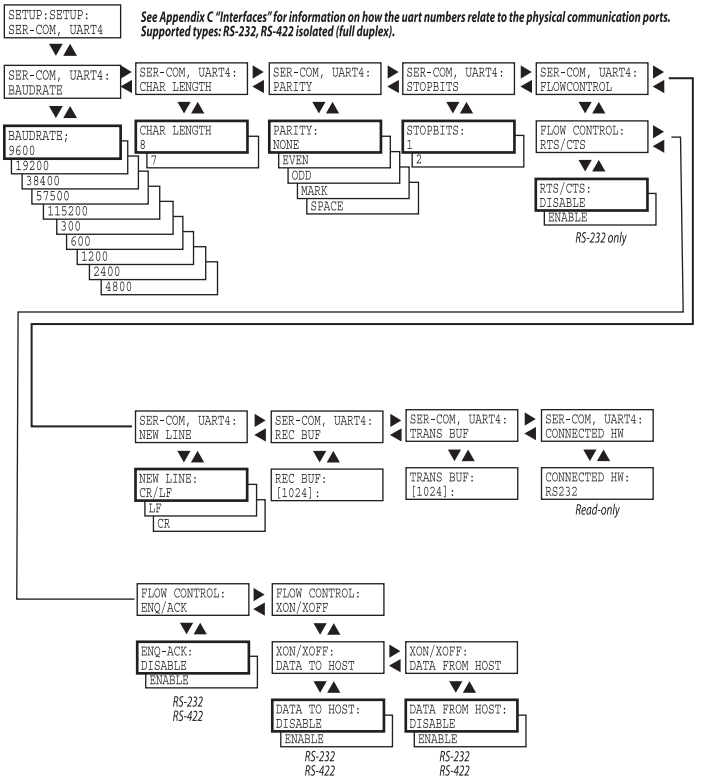
Serial Communication "uart3:" (option)

(Intermec Fingerprint v8.30)



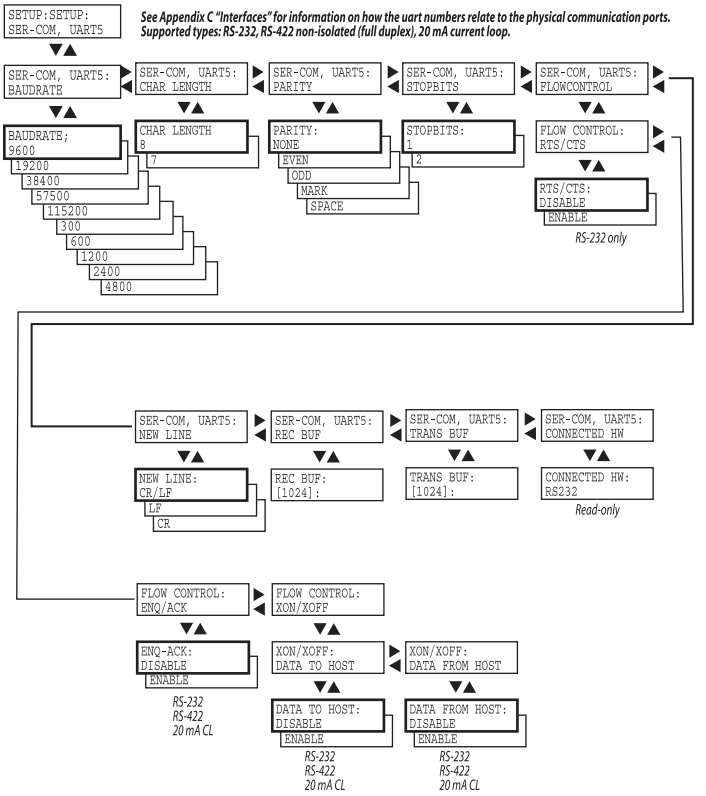
Serial Communication "uart4:" (option)

(Intermec Fingerprint v8.30)



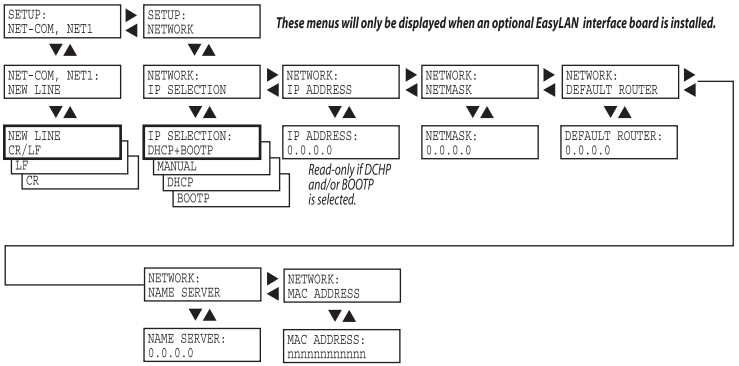
Serial Communication "uart5:" (option)

(Intermec Fingerprint v8.30)



Network Communication "net1:" (option)

(Intermec Fingerprint v8.30)



8 Intermec Shell Startup Program

This chapter describes the Intermec Shell Startup program and covers the following topics:

- Introduction
- Starting with Intermec Shell
- Intermec Shell Overview
- Line Analyzer

Introduction

Intermec Shell is a startup program, which is a program that automatically starts running when the printer is switched on. Intermec Shell helps the operator to choose between a number of standard or custom-made application programs and to start certain useful facilities, as listed below.

Application Programs

- Intermec Fingerprint (for creating your own programs or to run the Intermec InterDriver)
- Intermec Direct Protocol (easy-to-use slave protocol)
- LINE_AXP.PRG (line analyzer program)
- Other application programs in the printer's memory.

  A prerequisite for a program to appear as an option in Intermec Shell is that the program is provided with the extension ".PRG" and is stored in the root of the directory "/c" or "card1:". However, some original Intermec utility programs are excluded as long as they remain stored in "/rom":

  - ERRHAND.PRG
  - FILELIST.PRG
  - LBLSHTXT.PRG
  - KAUTO.PRG
  - SHELLXP.PRG
  - WINXP.PRG

Other Facilities

- Setup Mode (manual setup from printer's keyboard)
- Print Setup (printing setup on label)
- Testfeed (form feeds and auto-adjust of the LSS)
- Test Label (printing of test labels)
- Default setup (resetting all setup parameters to default)

- Software Update (downloading data from a host to a CompactFlash card in the printer, upgrading the printer's firmware from a Compact- Flash card, or upgrading the printer's firmware from a file in a PC)
- Reboot (restarting the printer)

Note: Intermec Shell is factory-installed in the printer's permanent memory (device "/rom"). If you insert a memory card with another startup file before you switch on the printer, or if there is a startup file stored in the printer's permanent memory (device "/c"), this startup file will be used instead of Intermec Shell (see **"Startup Files" on page 18**).

Starting with Intermec Shell

A few seconds after you have switched on the power to the printer and the initialization is completed, the countdown menu of the Intermec Shell program will be displayed:

```
ENTER=SHELL
5 sec. v.8.1
```

Now you have 5 seconds to enter Intermec Shell by pressing **Enter**. The lower line tells you how much time you have left. Should the time run out before you have taken any action, the last selected application in Intermec Shell will be opened. If you use the same application all the time, you will only need to switch on the power, once the application has been selected.

If no other application has yet been selected, the current version of Intermec Fingerprint will be opened with "auto" selected as std I/O channel (see Intermec Fingerprint manuals). When the countdown is completed, you will see these lines in the display:

```
FINGERPRINT
8.20
```

If you want to select another application, just cycle the power and enter Intermec Shell before the countdown is completed.

When you enter the Intermec Shell from the countdown menus, the Select Application menu displays:

```
SHELL
SEL. APPLICATION
```

In this menu, you can choose between two options:

- Press **Enter** to go to menus where you can select an application program.
- Press ▶ to go to the Facilities part of Intermec Shell.

Selecting an Application

In Intermec Shell, the menus present the options in infinite loops, To see all menus and options, refer to the overview in this chapter. The Select application lets you choose an application program that resides in the printer's memory:

- **Current appl.** starts the last selected application (by default Intermec Fingerprint with "auto" selected as standard I/O channel).
- **Fingerprint** is used to create, modify, or run programs written in the Intermec Fingerprint programming language and to run the Intermec InterDriver. This option requires that you also select a standard IN/OUT channel, which is the channel you want to use for communication between the printer and the computer. Normally, you select "uart1:". Refer to the Intermec Fingerprint manuals.
- **Direct Protocol** is an easy-to-use printer protocol for downloading label formats and variable input data to a printer from a host computer. This option requires that you also select a standard IN/OUT channel, that is the serial channel you want to use for communication between the printer and the host. Normally, you select "uart1:". Refer to the *Intermec Fingerprint v8.xx, Command Reference Manual*.
- **LINE-AXP.PRG** (Line Analyzer) is a Fingerprint program that captures characters received by the printer on a communication channel and prints them on labels.
- Other Application Programs will presented as additional options.

Note: When an application program is started, it may automatically change the communication setup. If another application is selected later, this communication setup will remain valid, unless the new application includes instructions that automatically change the setup. The setup could also be changed manually in the Setup Mode.

Selecting Other Facilities

As an alternative to selecting an application, you can step through a number of other useful facilities:

Setup

Set up the printer using its built-in keyboard, see "Setup Mode" on page 77.

Print Setup

Produce a printout of the printer's current setup values (test label "Setup Info").

Testfeed

Feed out a number of label, ticket, tag, or portions of continuous stock while the printer auto-adjusts its media feed and label stop/black mark sensor. It is recommended to perform a Testfeed each time you load a roll of labels from a new batch or a different brand.

Test Label

Print a series of four test labels (test labels "Diamonds", "Chess", "Bar Codes #1", and "Bar Codes #2") in order to test the printout quality and printhead alignment. The labels are presented in an infinite loop, so you can print the series over and over again. Press **Enter** for each new label.

Default Setup

Reset all setup parameters to their default values, as listed in "Default Setup" on page 61.

Software Update

Using the Zmodem communication tool, files can be downloaded from a PC, either to be stored on a standard CompactFlash memory card or to upgrade the printer's firmware. The following options are available:

- Update CompactFlash card allows the printer to be used as a CompactFlash card programming device. Any files can be

downloaded from a PC to a standard CompactFlash card inserted in the memory card slot in the printer's rear plate.

A typical application is to create a firmware upgrade card from an upgrade file stored in a PC. You can use the card to upgrade the firmware in several printers simply by moving the card from printer to printer. Just insert the card, switch on the power, and wait from the prompts to appear in the printer's display window.

Update firmware is used to directly upgrade the firmware of a specific printer from a new firmware version stored as a file in a PC. If the printer is equipped with an EasyLAN Ethernet or Wireless board, the user must have access rights to upgrade the firmware, see the EasyLAN User's Guide for the Ethernet or Wireless board.

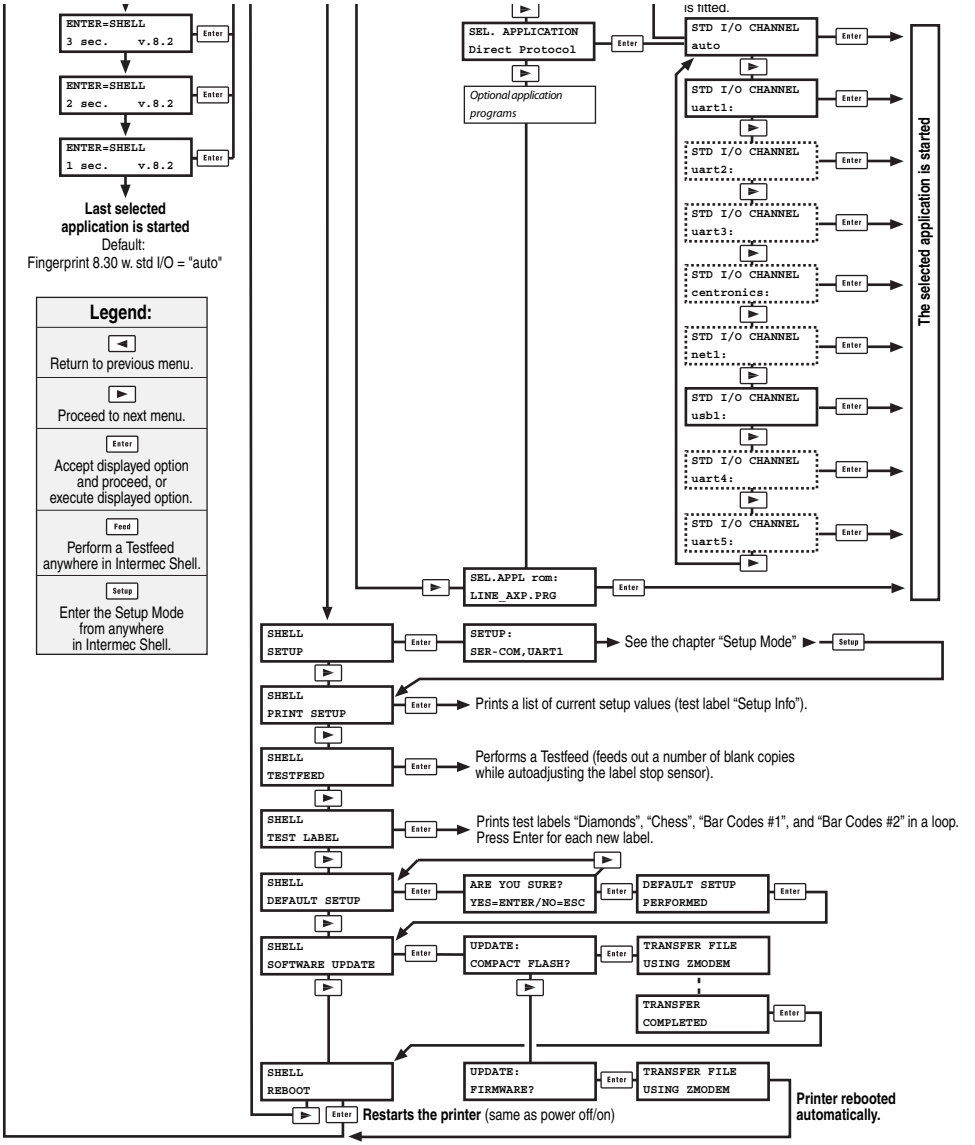
If the CompactFlash card or upgrade file contains an earlier firmware version than the one in the printer, the printer's firmware will be downgraded without warning.

Firmware upgrade files can be found on www.intermec.com or be obtained from your local Intermec distributor.

Reboot

Corresponds to cycling the power to the printer. To exit Intermec Shell without having selected any application, select Reboot. Then wait for the 5 seconds countdown to finish, and the last selected application will be opened.

Intermec Shell v8.1 Overview



Line Analyzer

The Line Analyzer (LINE_AXP.PRG) is a program written in the Intermec Fingerprint programming language and is intended to help solving possible communication problems. As the name implies, the Line Analyzer captures all incoming characters on a specified communication channel and prints them on one or more labels.

Printable characters are printed in black-on-white, whereas control characters and space characters (ASCII 000–032 dec) are printed in white-on-black.

While the printer is receiving data, the "Ready" LED blinks. There is a 0.5 second time-out. That is, if no more characters have been received after 0.5 second, the program considers the transmission terminated and prints out a label.

As long as a continuous string of characters is being received, the program wraps the lines until the label is full and then starts to print another label. At the bottom of each label, the following information is printed:

- Page number
- Number of characters printed on the label
- Total number of characters received so far

The Line Analyzer is displayed as the option "LINE_AXP.PRG" under the "SEL. APPLICATION" menu. After the Line Analyzer has been selected and the printer has started up again, the printer feeds out two labels and the following menu is displayed:

```
Line Analyzer
Sel.port(1-6) 1
```

Enter the desired communication port using the numeric keys on the printer's keyboard:

1 = "uart1:"

2 = "uart2:"

3 = "uart3:"

4 = "centronics:"

5 = “net1:”

6 = “usb1:”

If the printer is not fitted with the specified port, an error message appears in the display and you can select another port:

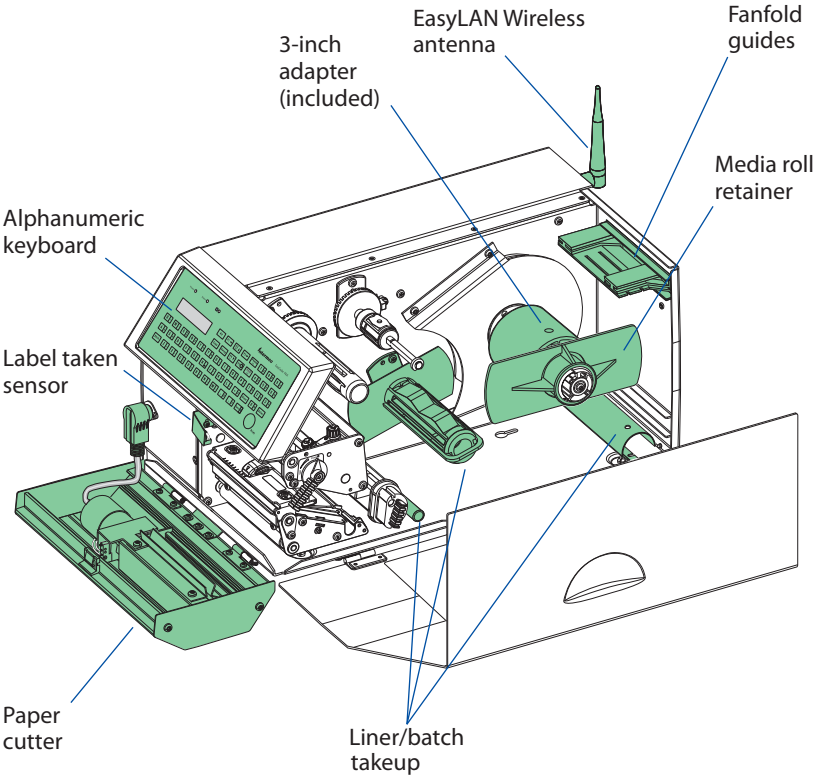
Line Analyzer
Error: 56

9 Options

This chapter describes the options available for the EasyCoder PX4i printer. The options can be factory installed, field-installed by an authorized service technician, or in some cases installed by the operator.

Introduction

The EasyCoder PX4i printer provides a high degree of flexibility because it has a modular design. By adding options to the basic printer, the EasyCoder PX4i printer can be adapted for a variety of applications. Some options should be installed by an authorized service technician or are only available as factory-installed options.



PX4i options

Liner/Batch Takeup Kit

This is a factory-installed option only and is used to separate labels from the liner and wind up the spent liner inside the printer's media compartment. Labels, tickets, tags, etc. can be wound up inside the media compartment after printing by fitting a special guide to the front of the print unit.

The kit consists of a stepper motor that drives the liner drive roller in the print unit (fitted as standard) and a takeup hub in the media compartment. A guide shaft is fitted to the center section immediately behind the slack absorber. A guide plate is fitted at the rear of the media compartment and can be used to replace the standard tear bar on the print unit for batch takeup operation.

Operation and media load are described in **"Peel-Off (Self-Strip)" on page 34** and **"Internal Batch Takeup (Roll-to-Roll)" on page 40**.

Paper Cutter

The EasyCoder PX4i printer can easily be fitted with an optional paper cutter. The cutter unit replaces the front door or the label taken sensor (LTS), if one is equipped. It is connected by a single cable to the DIN-connector on the printer's front. The paper cutter is available both as a factory-installed option and as a operator-installable kit.

The paper cutter increases the printer's total weight by approximately 1.0 kg (2.2 lb) and its length by 28 mm (1.1 in).

The paper cutter is intended to cut through continuous non-adhesive paper-based media or through the liner between labels. It must not cut through any adhesive, which would stick to the cutting parts and rapidly render the cutter inoperable–possibly also causing damage to the electric motor. Maximum thickness for normal paper-based materials is 175 µm (≈175 grams/m2).

The paper cutter can be tilted forward in order to facilitate cleaning and media load. For media load instructions, see **"Cut-Off" on page 29**."

The cutter is activated by CUT or CUT ON instructions, see the Intermec Fingerprint v8.3x manuals.

The rotating edge will cut through the media approximately 37 mm (1.5 in) in front of the printer's dot line. The media feed should be adjusted accordingly, see "Setup Mode" on page 77.

Should you inadvertently cut through self-adhesive labels, you will have to clean the cutting parts. Tilt the cutter unit down and wipe it using a piece of tissue moistened with isopropyl alcohol.

The cutting edge will rotate when the power is switched on and when the printer is re-booted. Always keep the cutter in closed position during operation. Switch off the power or disconnect the cutter before cleaning. Keep your fingers away from cutting edges!

Fanfold Guides

The fanfold guides provide more exact routing of the media when the supply is placed outside the media compartment, such as a stack of fanfolded tickets. The guides come as an operator-installable kit with installation instructions. The guides can be fitted in the upper or lower slot in the rear plate.

Instructions for loading the media are included in the section "External Supply (Fanfold)" on page 47.

Media Roll Retainer

The media roll retainer is intended for applications where the media may become misaligned on the media supply hub. The plastic wing-shaped retainer is simply slipped onto the media supply hub outside the media roll by the operator. No tools are required.

3-inch Adapter

The 3 in/76 mm adapter is included in the package and makes it possible to use media rolls with 3 in/76 mm inner diameter cardboard cores.

The adapter is pressed onto the media supply hub and held in place by a screw. When fitting the adapters, make sure that the screw hits a rounded plastic surface, not a metal leaf spring. Illustrations of how to load the media using the adapter can be found in "Loading Media" on page 23.

Label Taken Sensor

The Label Taken Sensor (LTS) is a photoelectric sensor fitted to the center section inside the front door. It allows the printer's firmware to detect if the latest printed label, ticket, tag etc. has been removed before printing another copy.

The label taken sensor is usually factory-fitted, but is also available as a kit for installation by an authorized service technician. It cannot be fitted in combination with a paper cutter.

The LTS can be enabled or disabled by means of the instructions LTS& ON and LTS& OFF respectively in Intermec Fingerprint and the Intermec Direct Protocol.

Real Time Clock

This factory or field-installed circuit (RTC) relieves the operator or the host from having to set the clock/calendar using the Intermec Fingerprint instructions DATE$ and TIME$ after each power up. The RTC has its own backup battery backup that will last 10 years or more.

CompactFlash Protection Plate

The protection plate encloses an inserted CompactFlash card and makes it more difficult to steal, see illustration in "Memory Card" on page 18. Operator-installed.

Alphanumeric Keyboards

The overlay of the printer's built-in keyboard can be replaced with an alphanumeric overlay. However, such a keyboard requires an application program created using the Intermec Fingerprint programming language.

External alphanumeric keyboards can be connected to the serial port.

Interface Boards

A number of interface boards are available for use with the EasyCoder PX4i printer. The interface boards are either factory-fitted or can easily be fitted by an authorized service technician.

The EasyCoder PX4i printer can accommodate one EasyLAN interface board plus one or two other interface board.

EasyLAN boards:

- EasyLAN Ethernet interface
- EasyLAN Wireless interface

Other communication boards:

- Parallel Interface Board (IEEE 1284)
- Double Serial Interface Board
- Serial/Industrial Interface Board

10 Troubleshooting

This chapter describes how the Intermec Ready-to-Work indicator and other indicators work. It also lists various possible cases of inferior printout quality, describes possible causes, and suggests remedies.

Intermec Ready-to-Work Indicator

The readiness of the printer, individually or as a part of a solution, is indicated by the blue Intermec Ready-to-Work indicator.

If the indicator blinks or is switched off, the printer is not ready. Further information can be obtained in the display window by pressing **F5/i**. In case of several errors or similar conditions occurring simultaneously, only the most significant error is displayed. Once this error has been cleared, next remaining error is displayed.

The printer will also return error messages to the host, provided there is a working two-way communication. Refer to the *Intermec Fingerprint v8.3x, Programmer's Reference Manual*.

Provided the printer is connected to a network, all conditions that prevents printing are reported to the EasyADC Console. The EasyADC Console is a PC-based software which allows a supervisor to monitor all connected devices that have an Intermec Ready-to-Work indicator, including handheld computers, access points, and printers.

Display Messages and LED Indications

Error/Event	Ready-to-Work	Error Number	Comment
Operational	On	0	No error
Out of paper	Blink	1005	
Next label not found	Blink	1031	
Label not taken	Blink		
Out of transfer ribbon	Blink	1027	
Head lifted	Blink	1022	
Cutter does not respond	Blink	1059	
Cutter error1	Blink	1701	
Cutter error2	Blink	1702	
Cutter error3	Blink	1703	
Cutter open	Blink	1704	
LSS too high	Blink	1007	

Display Messages and LED Indications (continued)

Error/Event	Ready-to-Work	Error Number	Comment
LSS too low	Blink	1008	
Testfeed not done	Blink	1606	
Pause Mode entered	Blink		
Setup Mode entered	Blink		Including interactive setup from Fingerprint/Direct Protocol
IP link error	Blink		See note 1, 2, and 3
IP configuration error	Blink		See note 1, 3, and 4
Generic DP error	Blink		See note 5
Press any key to continue	Blink		See note 6
Application load error	Blink		See note 7
IRI blink by application	Blink		Set by Fingerprint instruction SYSHEALTH
IRI off by application	Off		Set by Fingerprint instruction SYSHEALTH
Application break	Off		See note 8
Printhead not found	Off		
Rebooted	Off		
Initializing	Off		Set at startup until operational
Printer crash	Off		See note 3 and 9
Printer turned off	Off		
Maintenance	Off		Set when upgrading
Power supply Over temperature	Off	1718	
Printhead too hot	Off	1088	See note 10

Note 1: This is only applicable for printers equipped with an EasyLAN interface.

Note 2: A printer that is equipped with an EasyLAN interface, but is not connected to a network, will have a blinking IRI. To avoid this, the user can set “IP SELECTION” to “MANUAL” and “IP ADDRESS” to “0.0.0.0”. This will indicate that the user does not regard the lack of network connection as an error.

Note 3: No trap can be sent when this error/event occurs.

Note 4: This error indicates that the printer has not received an IP address. It is only applicable for printers with IP SELECTION set to DHCP and/or BOOTP.

Note 5: In the Direct Protocol, the user can enable error handling for specific errors using the ERROR statement. When errors added to the built-in error handling occur, this event will be set. The text included in the snmp trap is the standard text corresponding to the error.

Note 6: If an error occurs in the Fingerprint immediate mode, for example “out of paper” when the print key is pressed, this event will be set.

Note 7: If an application is started but does not execute, the IRI will blink. This will occur for example if there is a syntax error in the loaded program file. This is useful when a printer has an AUTOEXEC.BAT file (startup file) that is supposed to run automatically.

Note 8: When execution is stopped with user break (SHIFT + PAUSE) or due to a run-time error, the IRI shall be off. It will be set to on if the user changes mode to Direct Protocol or runs an application. If, however, the application program handles the user break (ON BREAK) or the runtime error (ON ERROR GOTO), the IRI will not be affected. In this case, it is up to the application to set the status.

Note 9: At most, but not all, printer crashes, the console is reset. This will make the IRI go off.

Note 10: If the printhead temperature raises above 100°C, error 1088 occurs.

In Fingerprint, printing will be aborted. Resuming printing after the printhead has cooled off to 85°C must be handled by the application program.

In the Direct Protocol, the printing is paused but will be automatically resumed when the printhead has cooled off to 85°C. Meanwhile, the printer is able to receive instructions and data until the buffer is filled.

Troubleshooting

Overall Weak Printout

Possible Cause	Remedy	Reference
Wrong media grade	Change parameter	"Setup Parameters" on page 62,
Contrast value too low	Change parameter	"Setup Parameters" on page 62
Printhead pressure too low	Adjust pressure	"Printhead Pressure" on page 131
Worn printhead	Replace printhead	"Replacing the Printhead" on page 123
Wrong printhead voltage	Replace CPU board	☎ Call Service

Printout Weaker On One Side

Possible Cause	Remedy	Reference
Uneven printhead pressure	Adjust arm alignment	"Printhead Pressure" on page 131

Weak Spots

Possible Cause	Remedy	Reference
Foreign particles on media	Clean or replace	"Loading Media" on page 23, "Loading Ribbon" on page 52
Media/ribbon don't match	Change to matching media	"Media" on page 66
Poor media or ribbon quality	Select a better brand of media/ribbon	"Intermec Supplies" on page 161
Worn printhead	Replace printhead	"Replacing the Printhead" on page 123
Worn platen roller	Replace rollers	☎ Call Service

Overall Dark Printout

Possible Cause	Remedy	Reference
Wrong media grade	Change parameter	"Setup Parameters" on page 62
Contrast value too high	Change parameter	"Setup Parameters" on page 62
Printhead pressure too high	Adjust	"Printhead Pressure" on page 131
Wrong printhead voltage	Replace CPU board	☎ Call Service

Excessive Bleeding

Possible Cause	Remedy	Reference
Wrong media grade	Change parameter	"Setup Parameters" on page 62
Contrast value too high	Change parameter	"Setup Parameters" on page 62
Printhead pressure too high	Adjust pressure	"Printhead Pressure" on page 131
Faulty energy control	Replace CPU board	☎ Call Service

Dark Lines Along Media Path

Possible Cause	Remedy	Reference
Foreign objects on printhead	Clean printhead	"Printhead Cleaning" on page 116

White Vertical Lines

Possible Cause	Remedy	Reference
Printhead dirty	Clean printhead	"Printhead Cleaning" on page 116
Missing printhead	Replace printhead	"Replacing the Printhead" on page 123

Large Part Of Dot Line Missing

Possible Cause	Remedy	Reference
Failing printhead	Replace printhead	"Replacing the Printhead" on page 123
Failing strobe signal	Check CPU-board	☎ Call Service

Printout Missing Along Inner Edge

Possible Cause	Remedy	Reference
Bad media alignment	Adjust	"Loading Media" on page 23
Using small core with supply post in upper position.	Move post to lower position	"Installation" on page 5
X-start parameter value too low	Increase value	"Setup Parameters" on page 62

Transfer Ribbon Breaks

Possible Cause	Remedy	Reference
Ribbon not fitted correctly	Reload ribbon correctly	"Loading Ribbon" on page 52
Wrong media grade	Change parameter, then clean printhead	"Setup Parameters" on page 62
Bad energy control	Adjust	☎ Call Service

Transfer Ribbon Wrinkles

Possible Cause	Remedy	Reference
Faulty ribbon break shaft adjustment	Adjust	"Narrow Media" on page 130
Incorrect edge guide adjustment	Adjust	"Loading Media" on page 23
Printhead pressure too strong	Adjust pressure	"Printhead Pressure" on page 131

No Thermal Transfer Printout

Possible Cause	Remedy	Reference
Ink-coated side of ribbon is not facing media	Reload ribbon	"Loading Ribbon" on page 52

Media Feed Not Working Properly

Possible Cause	Remedy	Reference
Changed media characteristics	Press **Print**	"Loading Media" on page 23
Wrong label rest parameter	Check/change	"Setup Parameters" on page 62
Wrong Media Type parameter	Check/change	"Setup Parameters" on page 62
Wrong LSS position	Check/change	"Label Stop Sensor" on page 132
Dirty sensors	Clean sensors	"Cleaning the Label Stop Sensor" on page 121
Loose or missing adapter	Replace and tighten set screw	"Tear-Off (Straight-Through)" on page 24
Faulty sensors	Replace sensors	☎ Call Service

Compressed Text Or Bar Code

Possible Cause	Remedy	Reference
Too high print speed for large media roll	Reduce print speed	"Setup Parameters" on page 62

11 Maintaining the Printer

This chapter describes how the operator can maintain the printer. Regular maintenance is important for the printout quality and for the life of the printhead. The chapter covers the following topics:

- Printhead Cleaning
- External Cleaning
- Cleaning the Label Stop Sensor
- Replacing the Printhead
- Media Jams

When cleaning or replacing the printhead, take precautions to avoid electrostatic discharges.

Printhead Cleaning

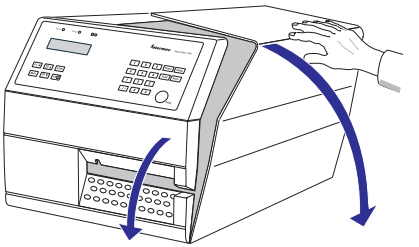
Cleaning the printhead on a regular basis is important for the life of the printhead and for the printout quality. You should clean the printhead each time you replace the media. This section describes how to clean the printhead using cleaning cards. If additional cleaning is required, for example removing adhesive residue from the platen roller or tear bar, use a cotton swab moistened with isopropyl alcohol.

Warning

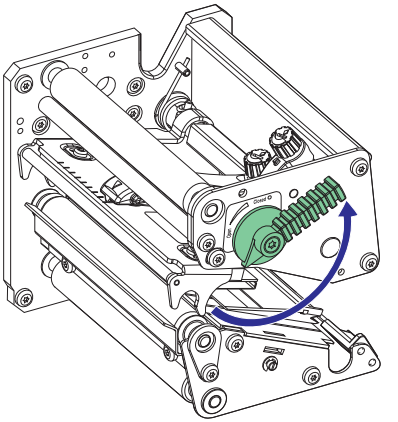
Isopropyl alcohol [(CH-3)2CHOH; CAS 67-63-0] is a highly flammable, moderately toxic, and mildly irritating substance.

To clean the printhead

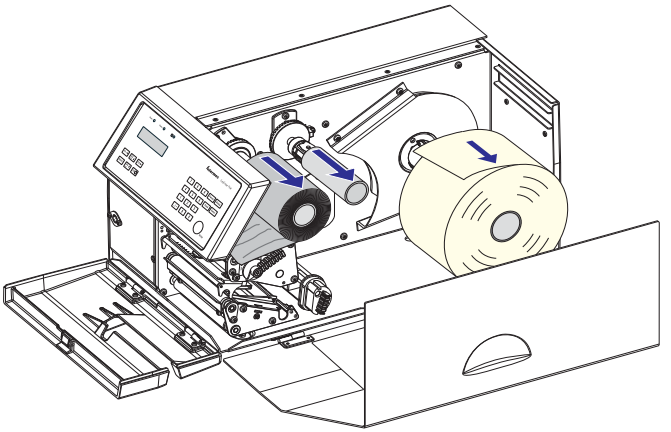
1 Open the front and side doors.



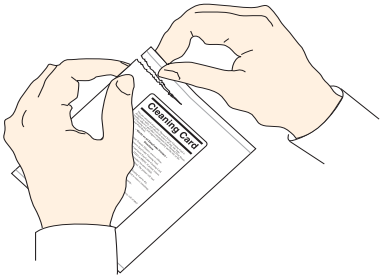
2 Turn the printhead lift lever counterclockwise to raise the printhead.



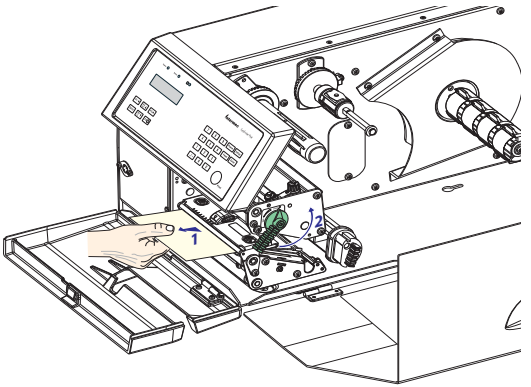
3 Remove any media and transfer ribbon.



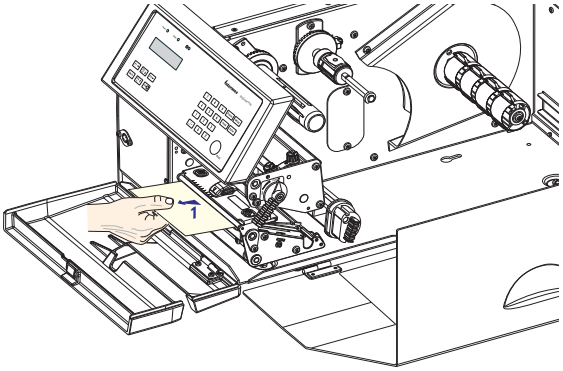
4 Open the cleaning card envelope and pull out the cleaning card. Read the warning text.



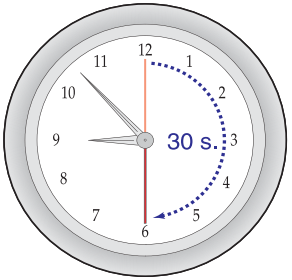
5 Insert most of the cleaning card under the printhead (1). Engage the printhead (2).



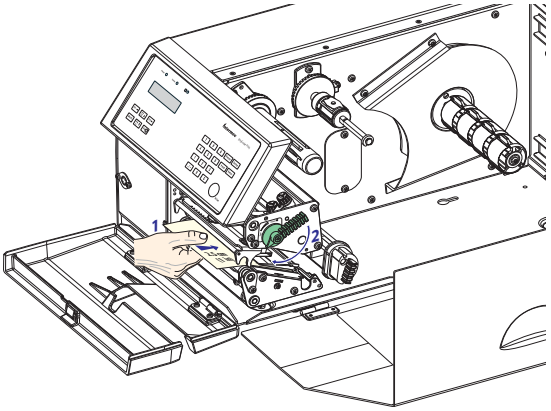
6 Pull out the cleaning card (1) and raise the printhead (2).



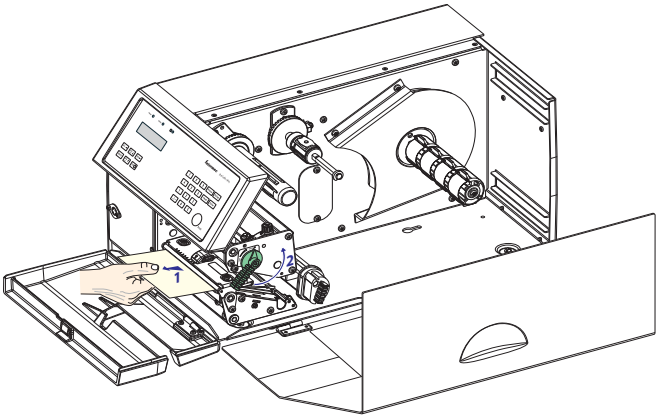
7 Wait for approximately 30 seconds to allow the cleaning fluid to dissolve the residue.



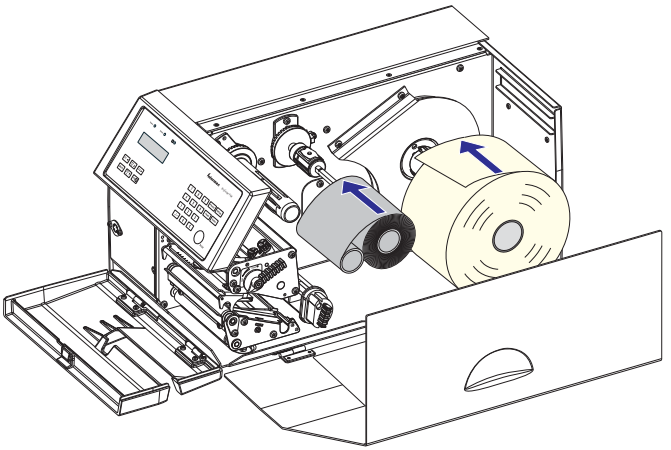
8 Insert most of the cleaning card under the printhead again (1). Engage the printhead (2).



9 Pull out the cleaning card. If necessary, repeat the process with a fresh cleaning card.



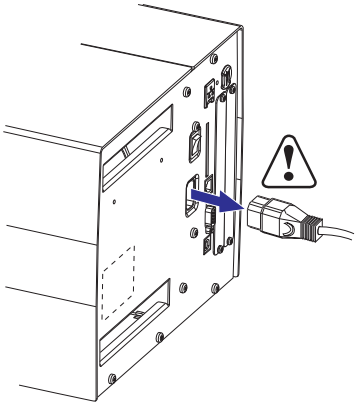
10 Allow the cleaned parts to dry completely before loading any media and ribbon.



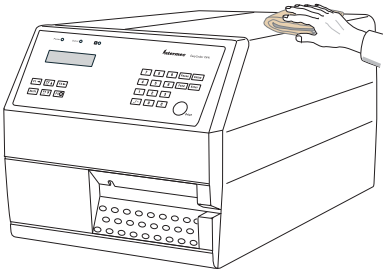
External Cleaning

To clean the exterior of the printer

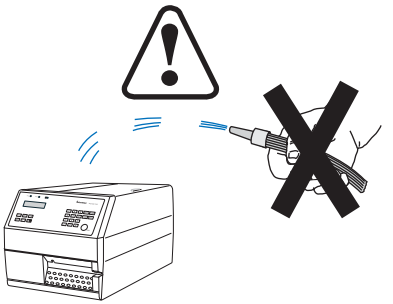
1 Always remove the power cord before cleaning!



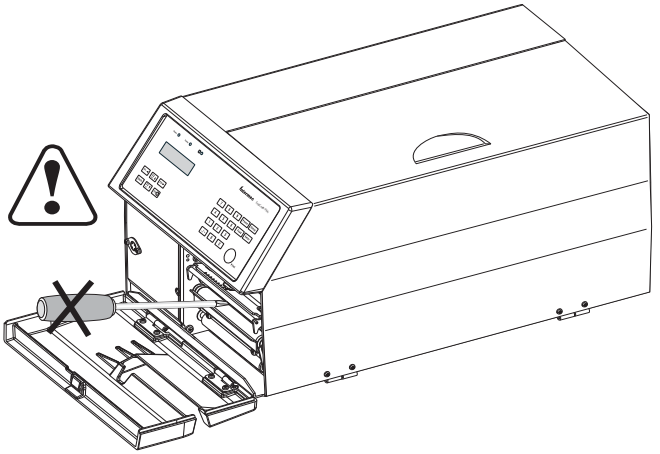
2 Wipe external surfaces with a soft cloth slightly moistened with water or a mild detergent.



Never spray the printer. Protect it from water when cleaning the premises.



Never use any sharp tools for removing stuck labels. The printhead and rollers are delicate.



Cleaning the Label Stop Sensor

The label stop sensor, which controls the media feed, is partially enclosed by two plastic guides. Light passes through slots between the upper and lower part of the sensor. If the guides are not clean, stuck labels or other objects may block the light beam.

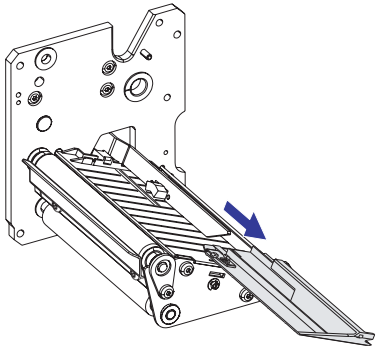
If the printer starts to feed out labels in an unexpected way, remove the guides as described below and check for anything blocking the beam of light. If necessary, clean the guides using a cleaning card or a soft cloth soaked with isopropyl alcohol. Do not use any other type of chemicals.

Warning

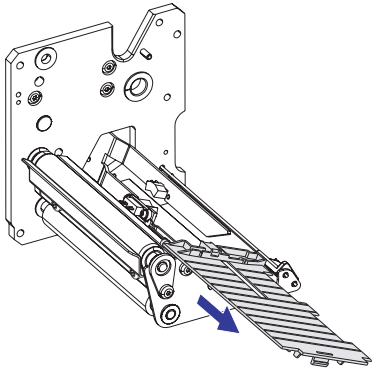
Isopropyl alcohol [(CH-3)2CHOH; CAS 67-63-0] is a highly flammable, moderately toxic, and mildly irritating substance.

To clean the Label Stop Sensor

1 Pull the upper guide straight out. (Upper part of print unit omitted for better view.)



2 Press the snap-lock, lift the outer end of the lower guide and pull it out. After cleaning, reassemble in reverse order.



Replacing the Printhead

The printhead is subject to wear both from the direct thermal media or transfer ribbon and from the rapid heating and cooling process during printing. Thus, the printhead will require periodic replacement.

Time between printhead replacements depends on the print images, the type of direct thermal media or ribbon in use, the amount of energy to the printhead, the print speed, the ambient temperature, and several other factors.

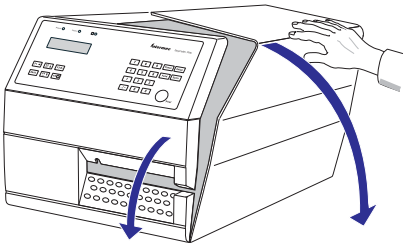
Caution

While replacing the printhead, the power must be off. The firmware will not detect the new printhead resistance and density until the printer has been restarted.

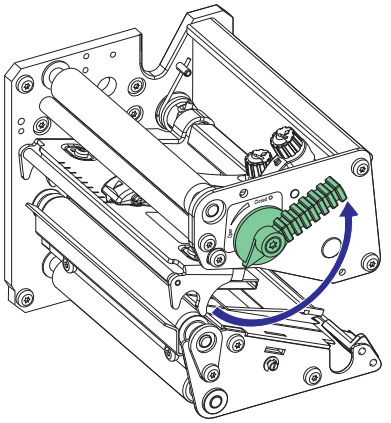
Note: Check that the density of the new printhead matches the printhead you are replacing. While you can switch between densities at will, the printout will be affected accordingly.

To replace the printhead

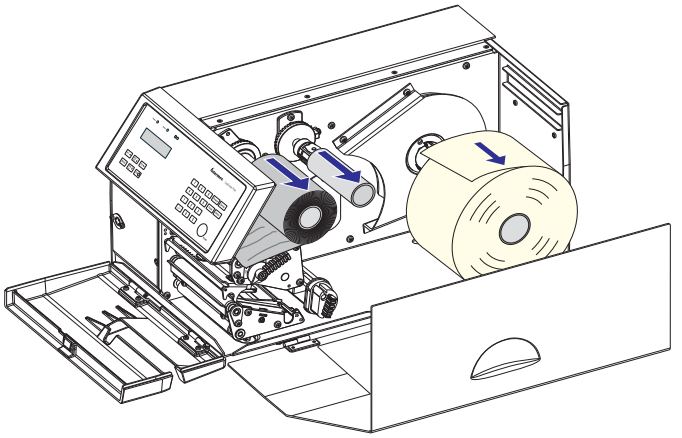
1 Open the front and side doors.



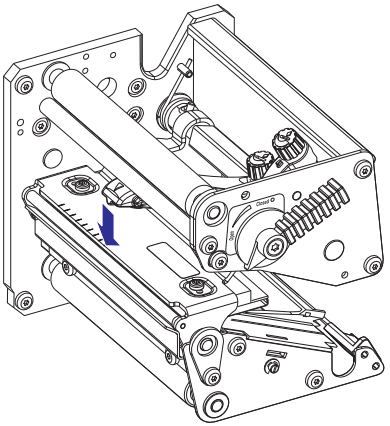
2 Turn the printhead lift lever counterclockwise to raise the printhead.



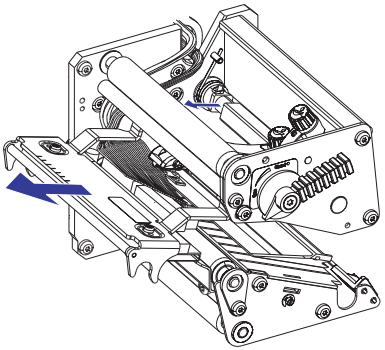
3 Remove any media and transfer ribbon.



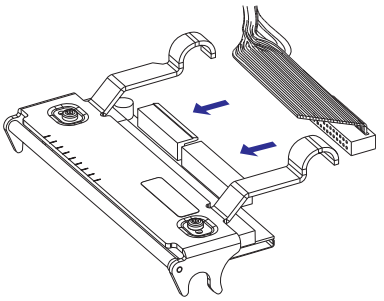
4 Pull the printhead bracket away from the magnet in the pressure arm.



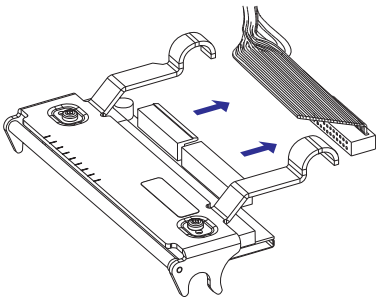
5 Disconnect the hooked printhead bracket fingers from the shaft and pull out the printhead as far as the cables allow.



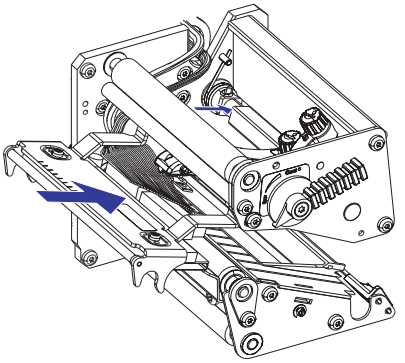
6 Disconnect the cables from the printhead. Note the snap-lock on the inner connector. Pull at the connectors—not at the cables!



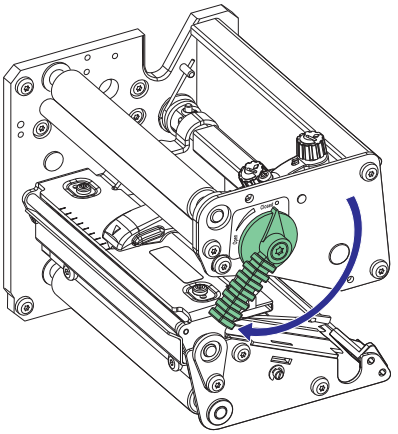
7 Connect the two cables to the replacement printhead.



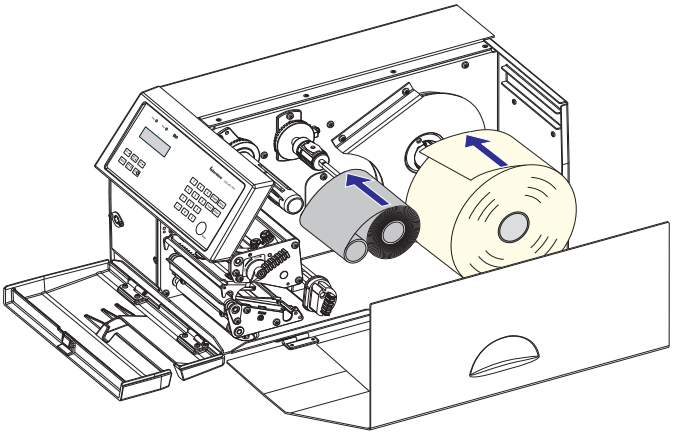
8 Fit the hooks of the printhead bracket fingers onto the headlift shaft. Make sure that the cables do not prevent the bracket fingers from being properly seated on the headlift shaft.



9 Close the printhead so the magnet engages the printhead bracket.



10 Load a new supply of media and ribbon, as described in **"Loading Media" on page 23**.



Media Jams

Should a media jam occur in the print mechanism, proceed this way to clear it.

To clear a media jam

1. Always switch off the power before starting to clear the jammed media.
2. Raise the printhead and pull out the media.
3. If the media has been wound up on or has stuck to the platen roller, carefully remove it by hand without using any sharp tools that can damage the delicate platen roller or printhead. Avoid rotating the platen roller.

If you must pull away the media by force causing the platen roller to rotate, it is very important that the power has been off for a minute or more. If not, the electronics can be damaged beyond repair.

4. Cut off any damaged or wrinkled part.
5. If there is any adhesive somewhere in the print mechanism, remove it using a cleaning card or a cotton swab soaked in isopropyl alcohol.

Isopropyl alcohol [(CH-3)2CHOH; CAS 67-63-0] is a highly flammable, moderately toxic, and mildly irritating substance.

6. Reload the media as described in "Loading Media" on page 23.
7. Switch on the power.
8. Readjust the media feed by raising and closing the printhead and then pressing **Feed**.

12 Adjustments

This chapter describes how the operator can adjust the printer. The chapter covers the following topics:

- Narrow Media Adjustment
- Printhead Pressure Adjustment
- Label Stop Sensor Adjustment

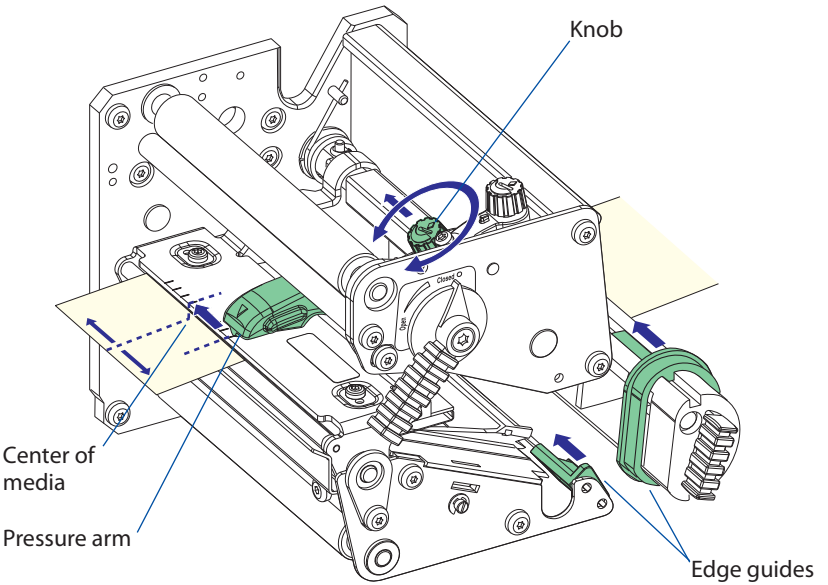
Narrow Media

The printer is factory-adjusted for full size media width. When using narrower media, adjust the pressure arm so it remains centered on the media and applies pressure evenly.

A poorly adjusted pressure arm may be detected by a weaker printout on either side of the media path.

To adjust the pressure arm

1. Remove the ribbon, if any.
2. Loosen the knob that holds the pressure arm. Move the arm inwards or outwards until the arrow on the tip of the arm becomes centered on the media stock.
   While moving the arm, push at the part where the knob is situated, not at the tip. If the arm is hard to move, lift the printhead and pull the printhead bracket free from the magnet in the arm.
3. Lock the arm in the new position by tightening the knob.
4. Re-adjust the edge guides.
5. Reload the ribbon, if any.



Pressure Arm adjustment

Printhead Pressure

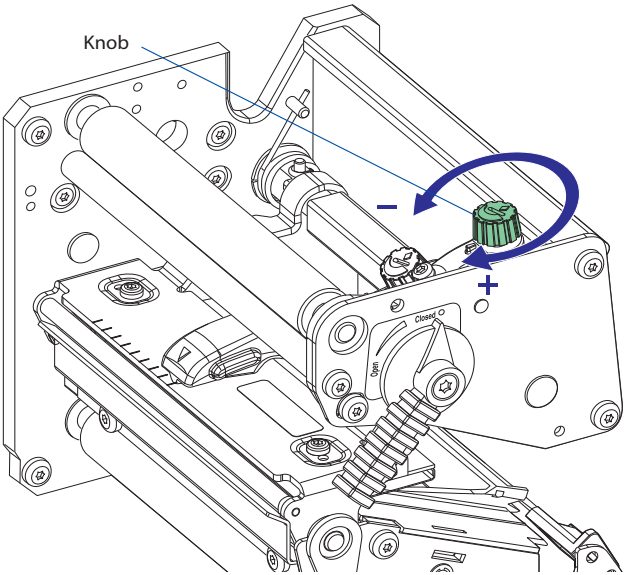
The pressure of the thermal printhead against the ribbon or direct thermal media is factory adjusted. However, the use of thicker or thinner media than normal could require the printhead pressure to be readjusted.

Turn the adjustment knob clockwise for increased pressure, or counterclockwise for less pressure. Print a few labels, preferably test labels, and check the printout. For help printing test labels, see **"Setting Up the Printer" on page 59**. Increased pressure generally gives a darker printout and vice versa. Repeat until the desired result is obtained.

To find the basic setting, turn the knob counterclockwise until there is no pressure left. Test with a piece of media under the printhead. You should be able to pull it out without more than just a little resistance. Then turn the knob four full turns clockwise. Fine-adjust using the trial-and-error method.

Caution

Do not use a higher printhead pressure than necessary. Unnecessary pressure may increase the wear of the printhead and shorten its life.



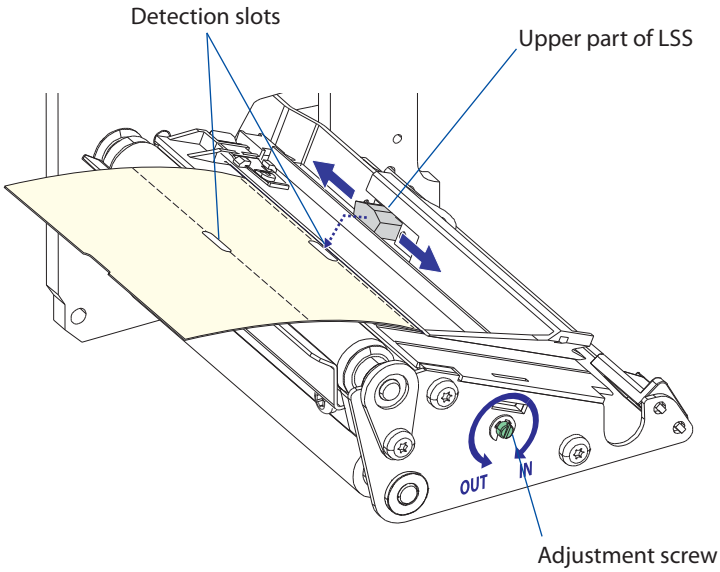
Printhead pressure adjustment

Label Stop Sensor

The label stop sensor (LSS) is a photoelectric sensor that controls the printer's media feed by detecting gaps between labels or slots or black marks in continuous stock, depending on the printer's setup in regard of media type. The LSS should be aligned with the gaps, slots, or black marks. If using irregularly shaped labels, align the LSS with the front tips of the labels.

The label stop/black mark sensor (LSS) can be moved laterally within a range of 0 to 50 mm (0 to 1.96 in) from the inner edge of the media path. There is a screw running through the outer lower gable. Turning the screw clockwise will move the LSS inwards and vice versa. The position of the LSS in relation to the media is best checked by looking head on into the print unit when the printhead is raised. Align the center point of the V-shaped upper sensor with the center of the slots or marks to be detected.

The linear markings on the lower guide plate can also be used for positioning of the LSS because they are spaced with an interval of exactly 1 cm (0.39 in). This method is especially useful for black marks (measure the lateral position of the black marks with a ruler before loading the media).



Label Stop Sensor adjustment

In the Print Defines part of the Setup Mode, you have two ways to test the label stop sensor if you have a detection problem; LSS Auto and LSS Manual.

The menu provides only indications from the label stop sensor unit. The testing menu can determine if the sensor unit is not physically in position, is blocked by dust or stuck labels, or is defective in some way. Furthermore, this is an aid if media has detection complications.

Note: There is no way to adjust the LSS-function. The menus only indicate values from the LSS obtained by performing a TESTFEED operation.

LSS Auto is the quick and normal way to determine if the label stop sensor works properly and is able to detect gaps, slots, or black marks.

LSS Manual shows the actual setting provided by the latest TESTFEED operation. It is also possible to try other settings. LSS Manual is primarily intended for service and is not described in this manual.

LSS Auto

- Check that the printer is set up for the type of media loaded in your printer (Setup Mode/Media/Media type/LABELS (with GAPS);TICKET (with MARK), TICKET (with GAPS), FIX LENGTH STRIP; or VAR LENGTH STRIP.
- Perform a TESTFEED by simultaneously pressing **Shift** and **Feed** on the printer's keyboard.
- Make sure that there is a label—not a gap or mark—at the LSS.
- Check that the media is routed as close to the center section as the guides allow.
- Enter the Setup Mode (see "Setup Mode" on page 77) and go to Setup Mode/Print Defines/LSS Test/LSS Auto.
- The menu should look like this with the cursor placed in the center:

- **Gap or slot detection:**

  Lift the printhead and pull out the media slowly. When the LSS detects a gap or a detection slot, the cursor moves to the right.

- **Black mark detection:**

  Lift the printhead and pull out the media slowly. When the LSS detects a black, the cursor moves to the left.

- It is possible to refresh the centered cursor position by pressing **▼/F4**.

If the cursor behaves as described above, the LSS is working and is properly aligned with the gaps, slots, or black marks.

If the cursor does not react to a gap, slot, or black mark, check the following:

- Is the LSS laterally aligned with the slots or black marks?
- Are both the upper and lower part of the LSS aligned with each other?
- Is the transfer ribbon properly loaded so it does not interfere with the LSS (See **"Loading Ribbon" on page 52**)?
- Are the label stop sensors free from dust and are the guides free from stuck labels or other objects that may interfere with the light that goes from one part of the LSS to the other? If necessary, clean the sensors.
- Does the media have some kind of preprint that can disturb the detection?
- Is there too little difference between the black marks and the surrounding areas?

- Does the liner have too little transparency?
- Does the LSS work with another type of media? (Remember to change the Media Type setup and perform a new TESTFEED.)

A Technical Data

This appendix lists the technical data for the printer. Please note that Intermec reserves the right to change this information without prior notice and that this information does not represent a commitment on the part of Intermec.

Printing

Print Technique	Direct Thermal and Thermal Transfer
Printhead Resolution	8 dots/mm (203.2 dpi) 11.81 dots/mm (300 dpi)
Print Speed (variable)	100 to 300 mm/sec (± 4 to 12 in/sec)
Print Width (max)	112 mm (4.41 in) - Direct Transfer 110 mm (4.33 in) - Thermal Transfer
Print Length (max)	32767 dots = 409.5 cm (161.25 in) at 203.2 dpi =277.5 cm (109.23 in) at 300 dpi See Note 1
Media Width (min/max)	25 to 120 mm (1 to 4.72 in.)
Media Roll Diameter (max)	213 mm (8.38 in) Tear-Off 205 mm (8.07 in Peel-Off
Media Roll Core Diameter	38 to 40 mm (1.5 in) 76 mm (3 in) with adapter fitted
Ribbon Width (min/max)	55 to 110 mm (2.17 to 4.33 in)
Ribbon Roll Diameter (outer), max.	80 mm (3.15 in) ± 450 m (1476 ft) of ribbon
Print Technique	Direct Thermal and Thermal Transfer
Ribbon Roll Core Diameter (inner)	25 mm (1 in)
Print Directions	4

Note 1: The maximum print length is also restricted by the amount of free SDRAM memory.

Modes of Operation

Tear-Off (Straight-through)	Yes	
Cut-Off	Option	With cutter
Peel-Off (Self-strip)	Option	With rewinder
Internal Batch Takeup	Option	With rewinder

Firmware

Operating System	Intermec Fingerprint v8.30	Incl. Direct Protocol
Smooth Fonts	True Doc and TrueType fonts	
Resident scalable fonts	15	Unicode fonts See Note 1
Resident bar codes	59	
Startup Program (std)	Intermec Shell v8.2	

Note 1: Latin, Greek, and Cyrillic fonts according to Unicode standard are included.

Physical Measurements

Dimensions (W × L × H)	275 × 482 × 238 mm (10.8 × 19.0 × 9.4 in)
Weight (excluding media)	12.85 kg (28.4 lb)
Ambient Operating Temperature	+5°C to +40°C (+41°F to +104°F)
Storage Temperature	-20°C to +70°C (-4°F to +152°F)
Humidity	10 to 90% non-condensing

Electronics

Microprocessor	32 bit RISC
On-board Flash SIMMs	2 sockets for 4 MB or 8 MB each Standard 1 x 4 MB
On-board SDRAM SIMM	1 socket for 16 MB Standard 16 MB

Power Supply

AC Voltage	90 to 265 VAC, 45 to 65 Hz
PFC Regulation	IEC 61000-3-2
Power Consumption	Minimum 20 W; Continuous printing, average 125 W; Peak 400 W

Sensors

Label Gap/Black Mark/Out of Media	Yes	Variable position
Printhead Lifted	Yes	
Ribbon End/Ribbon Low	Yes	
Paper Sensor	Yes	

Controls

LEDs	3	
Display	2 × 16 character LCD	Background light
Keyboard	22 keys membrane-switch type	
Print button	1	
Beeper	Yes	

Data Interfaces

Serial	1 × RS-232 + 1 × USB	
Bar Code Wand	Yes	
Connection for Optional Interface Boards	1 + 1	1 for EasyLAN, 2 for other boards
Cutter Interface	1	
Memory Card Adapter	1	CompactFlash cards

Accessories and Options

Integral Self-strip Unit with Liner Takeup	Option 1, 2	For peel-off and batch takeup
Media Roll Retainer	Option 3	
Fanfold Guide	Option 3	
Cutter	Option 3	
Label Taken Sensor	Option 1, 2	
Real Time Clock	Option 1, 2	10+ years life
Parallel Interface Board	Option 1, 2	IEEE 1284
Double Serial Interface Board	Option 1, 2	2 serial ports
Serial/Industrial Interface Board	Option 1, 2	
EasyLAN Ethernet Interface	Option 1, 2	
EasyLAN Wireless Interface	Option 1, 2	
Built-in Alphanumeric Keyboard	Option 1, 2	
External Alphanumeric Keyboard	Option 3	
CompactFlash Protection Plate	Option 3	
CompactFlash Cards for various purposes	Option 3	8 MB-1 GB

Option 1: Factory installed option.

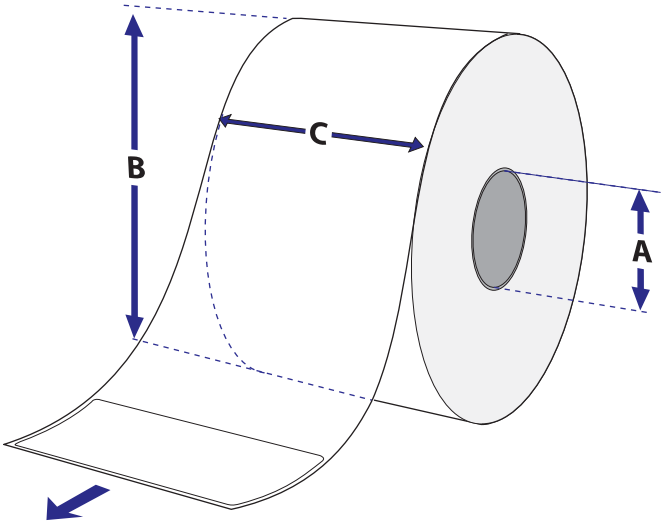
Option 2: Field-installable kit. Installation should be performed by a service technician.

Option 3: Operator-installable option.

B Media Specifications

This appendix specifies the physical measurements for various types of media.

Media Roll Size



Core diameter (A), standard: 38 to 40 mm (1.5 in), with adapter: 76.2 mm (3 in)

Core Width: Must not protrude outside the media.

Caution

The media must be wound up on the core in such a way that the printer can pull the end free.

Max. diameter (B), tear-off and cut-off	213 mm (8.38 in)
Max.diameter (B), peel-off and batch takeup	205 mm (8.07 in)
Max. width (C)	120 mm (4.72 in)
Min. width (C)	25 mm (1.00 in)

The recommended media thickness is 60 to 170 µm (2.4 to 6.7 mils). If thicker media is used, print quality may be reduced. Media stiffness must be balanced against thickness to maintain print quality. Media rolls to be loaded inside the printer should be wound with the printable side facing outwards.

The media supply must not be exposed to dust, sand, or grit. Any hard particles, however small, can damage the printhead.

Media

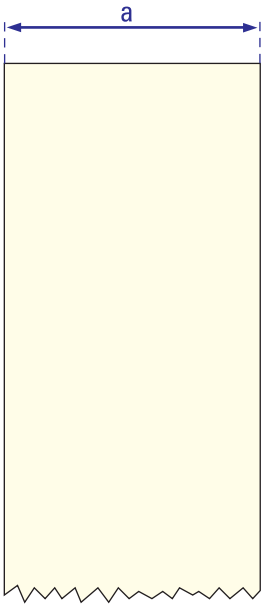
Non-Adhesive Strip

(a) Media Width

Minimum: 25 mm (1.00 in)
Maximum: 120 mm (4.72 in)

Media Type Setup:

- Fix length strip
- Var length strip



Self-Adhesive Strip

(a) External Media Width (including liner)

Minimum: 25 mm (1.00 in)
Maximum: 120 mm (4.72 in)

(b) Liner Width

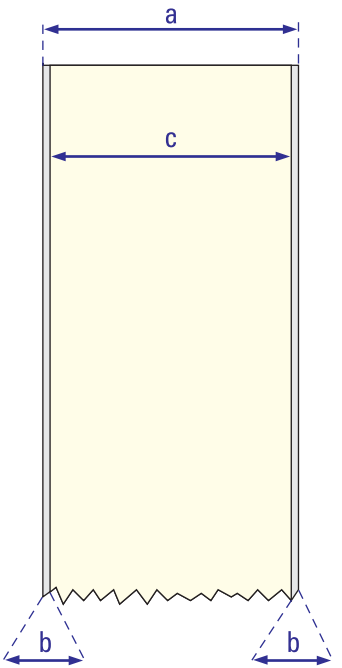
The liner must not extend more than a total of 1.6 mm (0.06 in) past the edge of the face material and should protrude equally on both sides.

(c) Media Width (excluding liner)

Minimum: 23.8 mm (0.94 in)
Maximum: 118.4 mm (4.66 in)

Media Type Setup:

- Fix length strip
- Var length strip



Self-Adhesive Labels

(a) External Media Width (including liner)

Minimum: 25 mm (1.00 in)
Maximum: 120 mm (4.72 in)

(b) Liner Width

The liner must not extend more than a total of 1.6 mm (0.06 in) past the edge of the face material and should protrude equally on both sides. Recommended minimum transparency: 40% (DIN 53147).

(c) Media Width (excluding liner)

Minimum: 23.8 mm (0.94 in
Maximum: 118.4 mm (4.66 in)

(d) Label Length

Minimum (without LTS): 8 mm (0.32 in)
Minimum (with LTS): 12 mm (0.47 in) For more information, see **"Label Taken Sensor" on page 105**.
Maximum: 8 dots/mm (203.2 dpi): 6,143 mm (241 in)
11.81 dots/mm (300 dpi): 4,162 mm (163 in), provided that there is a sufficient amount of free SDRAM memory

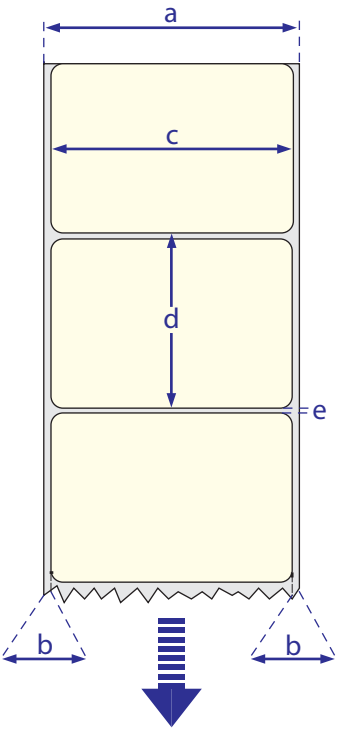
(e) Label Gap

Recommended: 3.0 mm (0.12 in)
Minimum: 1.27 mm (0.05 in)
Maximum: 25.0 mm (0.98 in)

The Label Stop Sensor must be able to detect the extreme front edges of the labels. For more information, see **"Label Stop Sensor" on page 132**.

Opacity
The difference between in opacity between label plus liner and liner only should be ≥ 19% units. Maximum liner opacity is 72%.

Media Type Setup: Label (with gaps)



Tickets With Gaps

(a) Media Width

Minimum: 25 mm (1.00 in)
Maximum: 120 mm (4.72 in)

(b) Liner Width

Minimum (without LTS): 8 mm (0.32 in)
Minimum (with LTS): 12 mm (0.47 in) For more information, see **"Label Taken Sensor" on page 105**.
Maximum: 8 dots/mm (203.2): 6,143 mm (241 in)
11.81 dots/mm (300 dpi): 4,162 mm (163 in), provided there is a sufficient amount of free SDRAM memory

(c) LSS Detection Position: Variable, see **"Label Stop Sensor" on page 132**.

(d) Detection Slit Length

The length of the detection slit (excluding corner radii) must be a minimum of 2.5 mm (0.10 in) to either side (right or left) of the label stop sensor detection position.

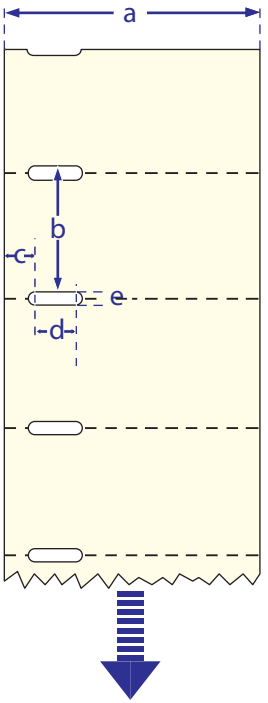
(e) Detection Slit Height

Recommended: 1.6 mm (0.06 in)
Minimum: 1.27 mm (0.05 in)
Maximum: 25.0 mm (0.98 in)

Opacity
Max opacity difference: 48%

Media Type Setup: Gap Stock

Note: Handle perforated media carefully to avoid rips or breaks along the perforations. Broken or ripped perforations, particularly at the edges, may cause the media to break or misfeed during printing.



Tickets With Black Mark

(a) Media Width

Minimum: 25 mm (1.00 in)
Maximum: 120 mm (4.72 in)

(b) Copy Length

Minimum: 20.0 mm (0.8 in)
Maximum: 8 dots/mm (203.2 dpi): 6,143 mm (241 in)
11.81 dots/mm (300 dpi): 4,162 mm (163 in), provided there is a sufficient amount of free SDRAM memory

(c) LSS Detection Position: Variable, see**"Label Stop Sensor" on page 132**.

(d) Black Mark Width

Recommended: 10.0 mm (0.39 in)
Minimum: 5.0 mm (0.20 in)
Maximum: Full media width

(e) Black Mark Length

Recommended: 3.2 mm (0.13 in)
Minimum: 1.27 mm (0.05in)
Maximum: 25.0 mm (0.98 in)

(f) Black Mark Y-Position

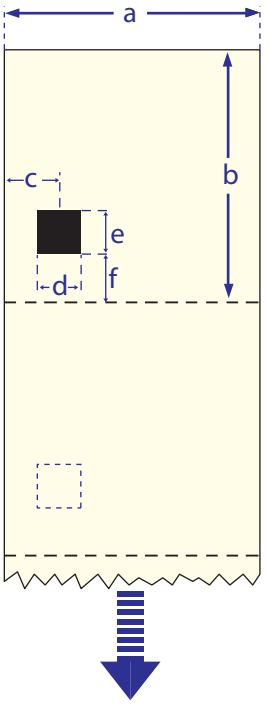
It is recommended that you place the black mark as close to the front edge of the ticket as possible and use a negative Stop Adjust value to control the media feed, so the tickets can be properly torn off. The black mark can be placed either on the top or at the back of the media.

Black Mark Characteristics
Maximum reflectance: 15%, 940 nm
Difference between mark and media: 55%

Media Type Setup: Mark Stock

Note: Handle perforated media carefully to avoid rips or breaks along the perforations. Broken or ripped perforations, particularly at the edges, may cause the media to break or misfeed during printing.

Note: Preprint that may interfere with the detection of the black mark should be avoided. However, the Intermec Fingerprint statement LBLCOND allows the sensor to be temporarily disabled during a specified amount of media feed in order to avoid unintentional detection, see Intermec Fingerprint manuals.



C Interfaces

This appendix describes the interface connectors found on the printer's rear plate. It covers the following topics:

- RS-232 Interface
- USB Interface
- Bar Code Wand Interface
- Optional Interfaces

RS-232 Interface

Protocol For The Default Setup

Baud rate: 9600

Character length: 8 bits

Parity: None

Stop bits: 1

RTS/CTS: Disabled

ENQ/ACK: Disabled

XON/XOFF: Disabled (both ways)

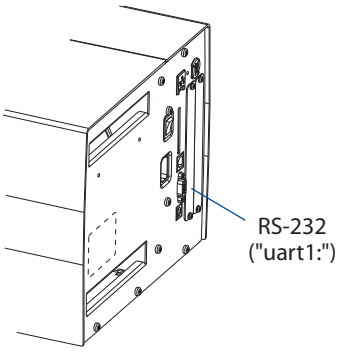
New Line: CR/LF

To change the interface settings, see "Setting Up the Printer" on page 59.

SIgnals On Printer's Serial Port "uart1:"

DB-9	Signal	Meaning
1		External +5V DC*
2	TXD	Transmit data
3	RXD	Receive data
4	DSR	Data set ready
5	GND	Ground
6	DTR	Data terminal ready
7	CTS	Clear to send
8	RTS	Request to send
9	---	Not Used

* The external +5 V is limited to 500 mA and is automatically switched off at overload.



RS-232 Interface

Interface Cable

Computer end: Depends on computer model

Printer end: DB-9 plug

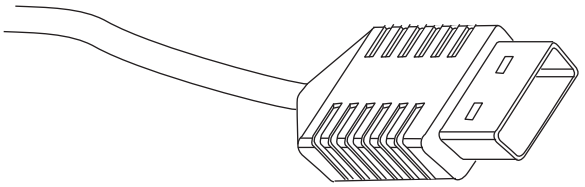
USB Interface

This printer supports USB v1.1 (also called USB 2.0 full speed). To use the USB interface for printing from a PC, you need a special Intermec USB printer driver installed in your PC.

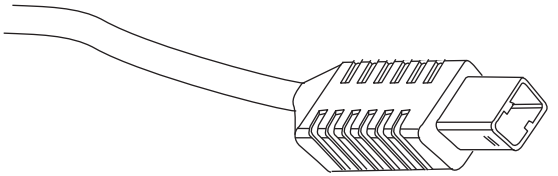
The printer is a so-called "self-powered device." We recommend that you only connect one printer to each USB port on the host, either directly or via a hub. Other devices, like a keyboard and a mouse, can be connected to the same hub. If you need to connect more than one Intermec USB printer to a host, you should use different USB ports.

Using a USB Class A/B cable, connect the Class A plug to your PC or hub and the Class B plug to your printer.

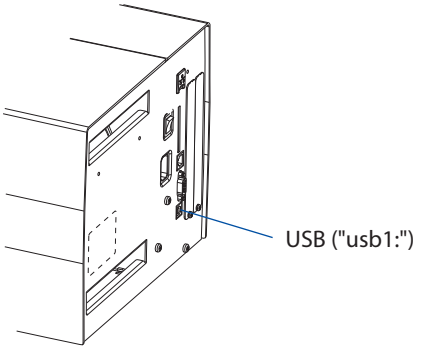
The USB interface is essentially a one-way communication interface. There is no communication setup for the USB port.



USB Class A connector



USB Class B connector



USB Interface

Bar Code Wand Interface

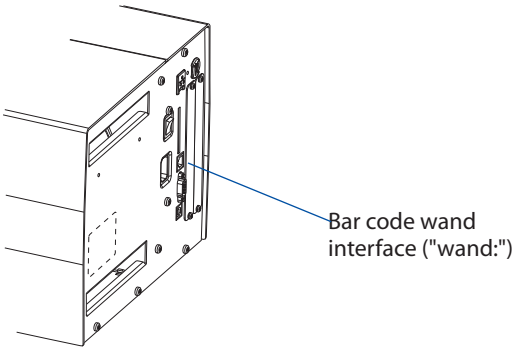
The printer has a socket on the CPU board for connecting a bar code wand or scanner. The socket is accessible through a slot in the printer's rear plate.

If a Code 128 bar code that contains the character FNC3 is read via this port, the data will be treated as a setup string and will change the printer's setup accordingly. A setup bar code may contain a single parameter or a combination of up to 3 or 4 setup parameters. Refer to the *EasySet Bar Code Wand Setup manual* (P/N 1-960560-00) for more information on how to produce setup bar codes.

The printer will acknowledge that a bar code has been successfully read by emitting a short beep signal.

If no FNC3 character is found in the bar code, the data will be stored in a buffer which could be read by specifying the "wand:" device. The buffer is small, so it is recommended to use short bar code data (max. 16 characters) and read the buffer regularly to avoid overflow.

For more demanding applications or for reading bar codes other than Code 128, choose a regular bar code scanner from Intermec's wide product range and connect it to a serial port.



Bar Code Wand Interface

Optional Interfaces

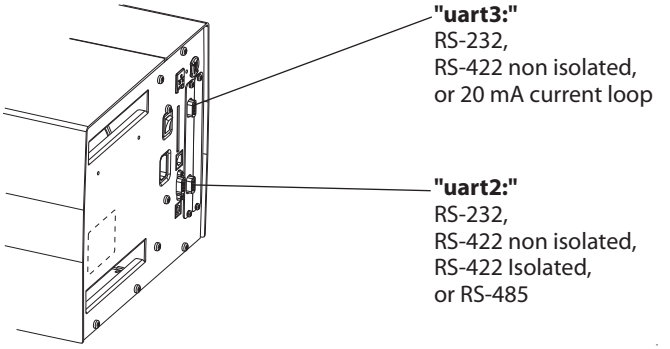
The printer can optionally be fitted with one or two of the following interface boards at the right-hand side of the printer's rear plate:

- Double Serial Interface Board
- Serial/Industrial Interface Board
- IEEE 1284 Parallel Interface Board (only one at a time)

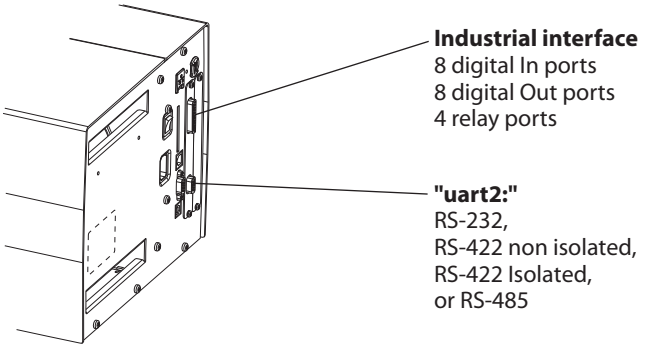
Regardless of any of the interface boards mentioned above are installed, the printer can also be fitted with one of the following EasyLAN interface boards for connection to a Local Area Network (LAN).

- EasyLAN Ethernet Interface
- EasyLAN Wireless Interface

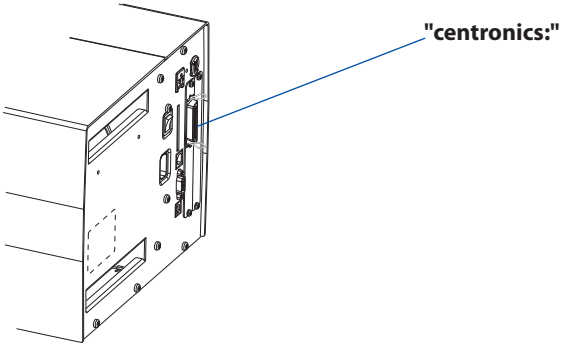
Double Serial Interface Board



Serial/Industrial Interface Board



IEEE 1284 Parallel Interface Board



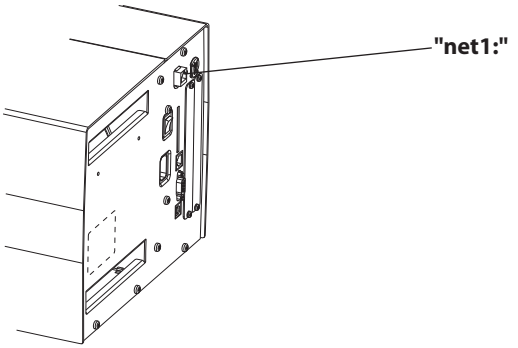
Allowed Interface Combinations

Left-hand slot	Ports	Right-hand slot	Ports
Double Serial	uart2: + uart3:	–	–
Double Serial	uart2: + uart3:	Double Serial	uart4: + uart5:
Double Serial	uart2: + uart3:	Serial/Industrial	uart4:
Double Serial	uart2: + uart3:	IEEE 1284	centronics:
Serial/Industrial	uart2:	–	–
Serial/Industrial	uart2:	Serial/Industrial	uart3:
Serial/Industrial	uart2:	Double Serial	uart3: + uart4:
Serial/Industrial	uart2:	IEEE 1284	centronics:
IEEE 1284	centronics:	–	–
IEEE 1284	centronics:	Double Serial	uart2: + uart3:
IEEE 1284	centronics:	Serial/Industrial	uart2:

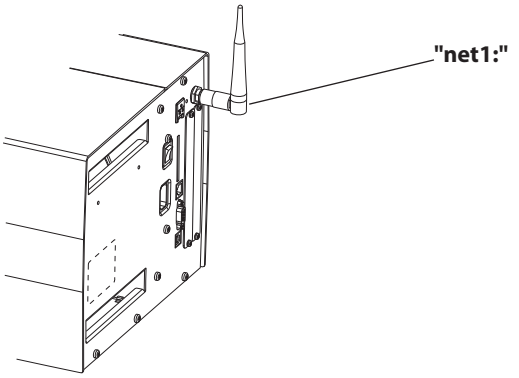
Remarks:

- The left-hand slot is the slot closest to the center section.
- Always start by fitting an interface board in the left-hand slot.
- RS-485 is only supported by “uart2:”.

EasyLAN Ethernet Interface



EasyLAN Wireless Interface



For information on how to set up, operate, configure, and troubleshoot an EasyLAN interface, please refer to the following manuals included on the PrinterCompanion CD.

- *EasyLAN Interface Kit Installation Instructions*
- *EasyLAN Wireless Interface Kit Installation Instructions*
- *EasyLAN User's Guide*
- *EasyLAN Network Setup User's Guide*

D Intermec Supplies

This appendix describes the supplies offered by Intermec for use with this printer, that is, direct thermal media, thermal transfer ribbons, and receiving face materials for thermal transfer printing.

Direct Thermal Media

Intermec offers two quality grades of direct thermal media for the Easy-Coder printers:

Premium Quality

Top-coated media with high demands on printout quality and resistance against moisture, plasticizers, and vegetable oils. Examples:

Europe	North America
Thermal Top Board	Duratherm II
Thermal Top	Duratherm II Tag
Thermal Top High Speed	Duratherm Ltg.
	Duratherm IR

Economy Quality

Non top-coated media with less resistance to moisture, plasticizers, and vegetable oils. In all other respects, it is equal to Premium Quality. Examples:

Europe	North America
Thermal Eco	–
Thermal Eco Board	

Thermal Transfer Media

Intermec offers stock labels for thermal transfer printing in a wide range of quality grades.

Uncoated Papers

Economical high-volume printing. To be used with GP/TMX 1500 ribbons. Examples:

Europe	North America
TTR Uncoated	–

Coated Papers

Various coat-weight, smoothness, and gloss. To be used with HP/TMX 2500 and GP/TMX 1100/TMX 1500 ribbons. Examples:

Europe	North America
TTR Coated	Duratran II
TTR Premium	Duratran II Tag
TTR Premium Board	Valeron Tag
TTR High Gloss White	

Polyethylene Plastics

These media have better resistance to water and many common chemicals than uncoated and coated papers. They can be use outdoors and offer good tear resistance. Most often used with HP/TMX 2500 ribbons. Examples:

Europe	North America
TTR Polyethylene	Kimdura
TTR Gloss Polyethylene	Syntran

Polyesters

These media give high resistance to chemicals, heat, and mechanical abrasion with HR/TMX 3200 ribbons. Examples:

Europe	North America
TTR High Gloss Polyester	PET Gloss

Transfer Ribbons

Intermec offer three ranges of thermal transfer ribbons optimized for different purposes:

- **General Purpose (GP/TMX 1500)** transfer ribbons allow high speed printing and give a good printout, but are somewhat sensitive to smearing. They may be the best choice for uncoated and coated papers.
- **High Performance (HP/TMX 2200, TMX 2500)** transfer ribbons allow high speed printing and give a highly readable and de. ned printout on most face materials with smooth

surfaces. They have good "smear resistance" and are most suitable for intricate logotypes and images on matte-coated papers and synthetic face materials.

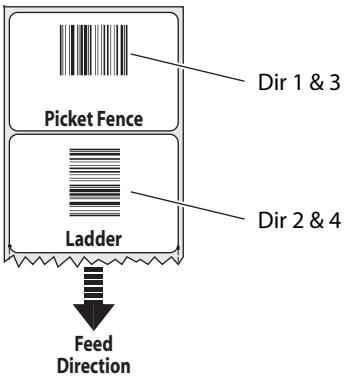
- **High Resistance (HR/TMX 3200)** transfer ribbons give an extremely durable printout, which is resistant to most chemical agents and high temperatures. However, such transfer ribbons set high demands on the receiving face material, which must be very smooth, such as polyesters.

  The use of HR/TMX 3200 ribbons requires the print speed and the energy supplied by the printhead to be controlled with great accuracy according to the receiving face material. Custom-made setup options adapted for special applications can also be created. Consult your Intermec distributor.

Bar Code Directions

Note: Intermec thermal transfer ribbons are engineered specifically for the EasyCoder printheads.

In the tables on the pages that follow, different maximum print speeds may be recommended depending on the direction of possible bar codes in the printout. Generally, ladder style bar codes are more demanding and may require a lower print speed, especially in connection with a large media roll and/or negative start adjust values (see **"Print Speed" on page 75**). The illustration below shows how the two type of bar code directions relate to the media feed direction.



Recommended Paper Type Settings (Europe)

Direct Thermal Printing; 8 dots/mm (203.2 dpi)

Type/Speed	Name	Label Constant	Label Factor	Max Rec. Dir 1&3[2]	Print Speed[1] Dir 2&4[3]
Top Coated	Thermal Top Board[4]	113	40	150	300
Standard	Thermal Top	79	40	250	300
	Thermal IR	98	40	150	300
Non Top Coated	Thermal Eco	69	40	300	300
Standard	Thermal Eco Board[4]	65	40	200	300
Top Coated/High	Thermal Top Coated	85	40	300	300

Thermal Transfer Printing; 8 dots/mm (203.2 dpi)

Type/Speed	Name	Ribbon Constant	Ribbon Factor	Label Offset	Max Rec. Dir 1&3[2]	Print Speed[1] Dir 2&4[3]
GP02	TTR Uncoated	66	25	0	300	300
	TTR Coated	67	25	0	300	300
	TTR Premium	60	25	0	300	300
HP66	TTR Coated	86	25	0	300	300
	TTR Premium	77	25	0	300	300
	TTR Premium Board[4]	97	25	0	300	300
	TTR High Gloss White	96	25	0	300	300
	TTR Polyethylene	74	25	0	300	300
	TTR Gloss Polyethylene	93	25	0	300	300
HP05	TTR Coated	79	25	0	250	250
	TTR Premium	72	25	0	250	250
	TTR Premium Board[4]	86	25	0	250	250
	TTR High Gloss White	85	25	0	250	250
	TTR Polethylene	68	25	0	250	250

Thermal Transfer Printing; 8 dots/mm (203.2 dpi) (continued)

Type/Speed	Name	Ribbon Constant	Ribbon Factor	Label Offset	Max Rec. Dir 1&3[2]	Print Speed[1] Dir 2&4[3]
	TTR Gloss Polyethylene	83	25	0	250	250
HR03	TTR High Gloss Polyester	88	25	0	150	225

1. Exceeding the recommended print speed may cause the printhead to wear out prematurely. If the ambient temperature is lower than =15°C (+59°F), decrease print speed by 50 mm/sec.
2. Applies to printing of text, lines, boxes, images, and picket fence bar codes.
3. Applies to ladder bar codes.
4. Requires high printhead pressure (See "Printhead Pressure" on page 131).

Direct Thermal Printing; 11.81 dots/mm (300 dpi)

Type/Speed	Name	Label Constant	Label Factor	Max Rec. Dir 1&3[2]	Print Speed[1] Dir 2&4[3]
Top Coated	Thermal Top Board[4]	96	40	300	200
Standard	Thermal Top	92	40	300	200
	Thermal IR	96	40	250	200
Non Top Coated	Thermal Eco	74	40	300	300
Standard	Thermal Eco Board[4]	61	40	300	250
Top Coated/High	Thermal Top Coated	85	40	300	300

Thermal Transfer Printing; 11.81 dots/mm (300 dpi)

Type/Speed	Name	Ribbon Constant	Ribbon Factor	Label Offset	Max Rec. Dir 1&3[2]	Print Speed[1] Dir 2&4[3]
GP02	TTR Uncoated	64	25	0	300	300
	TTR Coated	63	25	0	300	300
	TTR Premium	56	25	0	300	300
HP66	TTR Coated	71	25	0	300	300
	TTR Premium	71	25	0	300	300
	TTR Premium Board[4]	99	25	0	300	300

Thermal Transfer Printing; 11.81 dots/mm (300 dpi) (continued)

Type/Speed	Name	Ribbon Constant	Ribbon Factor	Label Offset	Max Rec. Dir 1&3[2]	Print Speed[1] Dir 2&4[3]
	TTR High Gloss White	84	25	0	300	300
	TTR Polyethylene	69	25	0	300	300
	TTR Gloss Polyethylene	80	25	0	300	300
HP05	TTR Coated	84	25	0	250	250
	TTR Premium	74	25	0	250	250
	TTR Premium Board[4]	92	25	0	250	250
	TTR High Gloss White	85	25	0	250	250
	TTR Polethylene	69	25	0	250	250
	TTR Gloss Polyethylene	80	25	0	250	250
HR03	TTR High Gloss Polyester	83	25	0	150	225

1. Exceeding the recommended print speed may cause the printhead to wear out prematurely. If the ambient temperature is lower than =15°C (+59°F), decrease print speed by 50 mm/sec.

2. Applies to printing of text, lines, boxes, images, and picket fence bar codes.

3. Applies to ladder bar codes.

4. Requires high printhead pressure (See **"Printhead Pressure" on page 131**).

Recommended Paper Type Settings (North America)

Direct Thermal Printing; 8 dots/mm (203.3 dpi)

Type/Speed	Name	Label Constant	Label Factor	Max Rec. Dir 1&3[2]	Print Speed[1] Dir 2&4[3]
Top Coated	Duratherm II	85	40	300	300
	Duratherm II-2	86	40	250	300
Standard	Duratherm II Tag[4]	68	40	300	300
Top Coated	Duratherm Lightning	62	40	300	300
High	Duratherm Lightning Plus	75	40	300	300
	Duratherm Lightning IR	65	40	250	300

Thermal Transfer Printing; 8 dots/mm (203.3 dpi)

Type/Speed	Name	Ribbon Constant	Ribbon Factor	Label Offset	Max Rec. Dir 1&3[2]	Print Speed[1] Dir 2&4[3]
TMX 1500	Duratran II Label	53	25	0	200	200
	Duratran II Syntran	64	25	0	200	200
	Duratran Kimdura	64	25	0	200	200
	Duratran S	63	25	0	200	200
	Duratran II Tag	57	25	0	200	200
TMX 2200	Duratran II Labels	63	25	0	200	200
	Duratran II Syntran	66	25	0	200	200
	Duratran Kimdura	78	25	0	200	200
	Duratran Valeron	79	25	0	200	200
	Duratran S	71	25	0	200	200

Thermal Transfer Printing; 8 dots/mm (203.3 dpi) (continued)

Type/Speed	Name	Ribbon Constant	Ribbon Factor	Label Offset	Max Rec. Dir 1&3[2]	Print Speed[1] Dir 2&4[3]
	Duratran II Tag	64	25	0	200	200
TMX 3200	Duratran II Gloss Polyester	93	30	0	150	150

1. Exceeding the recommended pring speed may cause the printhead to wear out prematurely. If the ambient temperature is lower than =15°C (+59°F), decrease print speed by 50 mm/sec.
2. Applies to printing of text, lines, boxes, images, and picket fence bar codes.
3. Applies to ladder bar codes.
4. Requires high printhead pressure (See "Printhead Pressure" on page 131).

Direct Thermal Printing; 11.81 dots/mm (300 dpi)

Type/Speed	Name	Label Constant	Label Factor	Max Rec. Dir 1&3[2]	Print Speed[1] Dir 2&4[3]
Top Coated	Duratherm II	86	40	300	300
	Duratherm II-2	88	40	300	250
Standard	Duratherm II Tag[4]	68	40	300	300
Top Coated	Duratherm Lightning	69	40	300	300
High	Duratherm Lightning Plus	80	40	300	250
	Duratherm Lightning IR	75	40	300	250
	Duratherm Lightning IR Tag	110	40	300	150

Thermal Transfer Printing; 11.81 dots/mm (300 dpi)

Type/Speed	Name	Ribbon Constant	Ribbon Factor	Label Offset	Max Rec. Dir 1&3[2]	Print Speed[1] Dir 2&4[3]
TMX 1500	Duratran II Label	53	25	0	200	200
	Duratran II Syntran	64	25	0	200	200
	Duratran Kimdura	64	25	0	200	200
	Duratran S	63	25	0	200	200

Thermal Transfer Printing; 11.81 dots/mm (300 dpi) (continued)

Type/Speed	Name	Ribbon Constant	Ribbon Factor	Label Offset	Max Rec. Dir 1&3[2]	Print Speed[1] Dir 2&4[3]
	Duratran II Tag	57	25	0	200	200
TMX 2200	Duratran II Labels	63	25	0	200	200
	Duratran II Syntran	66	25	0	200	200
	Duratran Kimdura	78	25	0	200	200
	Duratran Valeron	79	25	0	200	200
	Duratran S	71	25	0	200	200
	Duratran II Tag	64	25	0	200	200
TMX 3200	Duratran II Gloss Polyester	93	30	0	150	150

1. Exceeding the recommended pring speed may cause the printhead to wear out prematurely. If the ambient temperature is lower than =15°C (+59°F), decrease print speed by 50 mm/sec.

2. Applies to printing of text, lines, boxes, images, and picket fence bar codes.

3. Applies to ladder bar codes.

4. Requires high printhead pressure (See **"Printhead Pressure" on page 131**).

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EasyCoder PX4i Bar Code Label Printer User's Guide (Fingerprint Version)

P/N 934-040-001